4Motion® BTS and Mini-Centralized ASN-GW Device Driver for AlvariSTAR

Device Driver User Manual

SW Version 2.5.2
December 2009
P/N 215493

Document History

Topic	Description	Date Issued
Version Number and date Cover page, About this Manual	Updated versions numbers	November 2008
Managing a BTS Site Chapter 2	Updated to reflect Device Driver version 2.5.1.19 and managed device's NPU SW version 2_5_1_8.	November 2008
Parameters Summary Chapter 4	Updated to reflect Device Driver version 2.5.1.19 and managed device's NPU SW version 2_5_1_8.	November 2008
Manual's Name	"Device Manager" replaced by "Device Driver"	December 2008
Using the Device Manager Chapter	Chapter was removed. Its contents now form the first section in "Managing a BTS Site".	December 2008
Enabling Discovery	New Chapter	December 2008
The Equipment Manager	New Chapter	December 2008
Tasks Chapter	Completely revised (Overview section removed - updated version exists in the Infrastructure Manual. All Task sections updated and modified)..	December 2008
The File Manager	New Chapter	December 2008
Offline Configuration Manager	New Chapter	December 2008
The Performance Viewer	Updated	December 2008r
Managing a BTS Site and Parameters Summary Chapters	Updated to reflect 2.5 beta versions of NPU and Device Driver	December 2008
AlvariCRAFT	Added AlvariCRAFT to the shared platform.	March 2009
The Equipment Manager	Updated to reflect all GUI changes of Management System Infrastructure Version 4.5. New feature: Open Alarms. Updated functionality of Multiple Configuration and Backup Configuration options.	August 2009
Site Equipment View Page	Added support for Outdoor BTS. General updates/improvements.	August 2009

Topic	Description	Date Issued
Site Page, General Tab	Removed: Shelf HW Version parameter. Updated range for Site Address. Updated ranges for Longitude and Latitude. Updated description of Product Type. Updated Site Number change process. Added warning-a change in ASN Topology will take effect after next reset.	August 2009
Site Page, Dry Contacts Tab	New feature: Send Alarm condition for Input Alarms. Applicable only for Indoor BTS.	August 2009
Site Page, Time Tab	Removed: Clock Source parameters	August 2009
L1/L2 Connectivity Page	Removed: External Management VLAN ID. Added: AU Maintenance VLAN ID. Ethernet port are configurable also if Admin Status is enabled (Up). Added warning-a change in Connectivity Mode will take effect after next reset. CSCD port is applicable only for Indoor BTS. Updated description of VLAN Assigned	August 2009
IP Interface Page	No need to shut down the interface for modifying IP Interface parameters. Added warning-reset required after changing Bearer Interface IP Address.	August 2009
ACL Page	Updated with details on automatically created ACLs.	August 2009
Management Page, Performance Tab	Collection of Counters Groups that are not fully supported by the device cannot be enabled. Removed Performance Collection Interval.	August 2009
Management Page, Logging Tab	Updated description of Server IP.	August 2009
NPU Page	Added Reset To Factory With Connectivity option.	August 2009
Power Supply Page	Updated options for PIU HW Version (58Amp/35Amp). Applicable only for Indoor BTS.	August 2009

Topic	Description	Date Issued
New AU Window (Creating a New AU)	Updated options for AU Type (only AU 4x4 Modem is applicable). Removed Ports and Bandwidth parameters.	August 2009
AL Slot # Page, Card Properties Tab	Updated Required and Installed sections: ■ Updated options for AU Type (only AU 4x4 Modem is applicable). ■ Removed Ports and Bandwidth parameters. Added Maintenance Connectivity parameters.	August 2009
New ODU window	ODU number is is 1-28 for Indoor BTS and 1-24 for Outdoor BTS.	August 2009
ODU # Page	Removed: Heater Existence. Removed: Enable Tx.	August 2009
GPS Page	Removed: GPS Adapter Required	August 2009
Power Feeder Page	Applicable only for Indoor BTS.	August 2009
Antenna Page	Changed to reflect the use of the new Antenna Product Type parameter. Added Information read-only field, updated description of Description and Number of Ports. Updated ranges for Longitude and Latitude. Up to a maximum of 24 antennas can be defined for an Outdoor BTS.	August 2009
AAA Page	Updated structure. Accounting/Authentication UDP Port parameters removed. AAA Name added.	August 2009
Qos Marking Page	Updated range for QoS Marking Rule Name and Service Flow Media Flow Type. Marking Rule Name must be unique in the device. Added description of functionality of the feature.	August 2009

Topic	Description	Date Issued
Service Group Page, Service Interface Tab	Changed “Tunnel MTU Size” to “MTU Size”. Updated description of Default Gayeway IP Address. Added Subnet Mask. Updated value range for Service Interface Name (1-30 characters). Added general description of service interfaces. Uodated description of Tunnel Destination IP.	August 2009
Service Group Page, Service Groups Tab	Changed “Client Class Identifier” to “Vendor Class Identifier”. Addedd “Secondary DNS Server”. Added Service group deletion rule related to VLAN Service Interface. Updated value range for Service Group Name (1-30 characters). Added VPWS-Mapped option to Service Group Type. Updated value range for Lease Time. Added rule for DHCP Server IP Address Pool configuration. Add rule for Renewal Time configuration. Added general description of service groups. Updated description of Subnet Mask and Default Gateway IP Address.	August 2009
SFA Page, PHS Rule Tab	Updated range for PHS Rule Name	August 2009
SFA Page, Classification Rule Tab	Updated range for Classification Rule Name. Added configuration rules for Layer 3 and Layer 4 classifiers.	August 2009

Topic	Description	Date Issued
Service Profile Page	Removed Uplink/Downlink SDU Size. Updated range for Service Profile Name. Unsolicited Grant Interval (uplink) is not applicable for RTVR. Traffic Priority not applicable for UGS. Updated range for Max. Sustained Traffic Rate, Min. Reserved Traffic Rate. Added general description of service profiles and service flows. Updated description of Reference Service Interface.	August 2009
ASN-GW Keep Alive Page	New Feature	August 2009
BS Node	Added a note regarding the need to reset the AU and/or update neighbors after modifying certain parameters.	August 2009
Create BS	Updated process (no need to click Apply on Radio Advanced and Connectivity pages after completing configuration of mandatory parameters.	August 2009
Copy BS	New feature	August 2009
Radio Basic Page, General Tab	Added Idle Mode parameters. Updated range for Center Frequency.	August 2009
Radio Basic Page, Air Fame Structure General Tab	Removed Enable Uplink Sub-Channel Rotation.	August 2009

Topic	Description	Date Issued
Radio Basic Page, Air Frame Structure Zones Tab	Removed Map Size, added new First Zone parameters (Minimum Size, Maximum Size, Maximum Map Size). Added Uplink Data Zone Basic Rate. Added Downlink Data Zone Basic Rate for Management. Downlink Data Zone Number of Sub-Channels, Uplink Feedback Zone Number of Sub-Channels, Uplink Data Zone Number of Sub-Channels, Uplink Data Zone Start Allocation were removed. Removed Dynamic Permutation parameters (moved to Radio Advanced Page, Diversity Tab.	August 2009
Radio Basic Page, Diversity Tab	Moved to Radio Advanced Page.	August 2009
Radio Basic Page, Mobility Tab	New Tab name (was Handover tab). Added Neighbor column to Triggers table. Updated parameters in Neighbor List table. Updated button name (Choose Neighbor changed to Add Entry). Add details on Neighboring Task.	August 2009
Radio Advanced Page, Feedback Tab	Updated value range for Start of Ranging Codes. Removed consistency rule. Updated value range for IR CDMA Allocation Period. Removed Contention-Based Reservation Timeout, Number of Codes, Initial Backoff Window Size, Final Backoff Window Size, PR CDMA Allocation Period, Enable polling upon zero bandwidth request, all Timing Corrections parameters, Maximum CQI Region Size	August 2009
Radio Advanced Page, Diversity Tab	New. Moved from Radio Basic Page, with following changes: Downlink Data MIMO Mode is read-only. Removed all other parameters excluding Downlink Permutation Base and Uplink Permutation Base.	August 2009

Topic	Description	Date Issued
Radio Advanced Page, Channel Descriptors Tab	Removed	August 2009
Radio Advanced Page, Power Control Tab	Tab name changed (was Power Control Levels). Added Power Control Correction Factor. Removed Feedback Zone and Maximum EIRxP. Updated range for PUSC Zone.	August 2009
Radio Advanved Page, Power Control Policy Tab	Removed	August 2009
Radio Advanced Page, Rate Adaptation Tab	Removed (Basic Rate parameters moved to Services Page, Definitions Tab)	August 2009
Radio Advanced Page, Mobility Tab	New Name (was Handover). Removed all SBS and Handover Control parameters. Changed the name of RSSI parameter in Trigger Setup parameters to Averaging Duration (with updated description), removed all other Trigger Setup parameters. Changed Neighbor Advertisement to Neighbor Advertisement Broadcast. Changed the name of Periodic Interval to Interval. Removed all other Neighbor Advertisement parameters.	August 2009
Radio Advanced Page, Scanning Tab	Removed	August 2009
Radio Advanced Page, Management Tab	Removed general Downlink Dropped Packets Ratio parameter. Added new parameters for Alarm Threshold for Downlink Dropped Packet Ratio per service type. Added new parameters for Alarm Thresholds for noise and interference level.	August 2009
Radio Advanced Page, QoS Tab	New feature	August 2009
Connectivity Basic Page, Bearer Tab	Addedd VLAN ID (read-only). Updated descriptions of IP Address and Default Gateway.	August 2009

Topic	Description	Date Issued
Connectivity Advanced Page, QoS Marking Rules Tab	New Name (was Bearer Plane) Updated range for Service Flow Data Delivery Type	August 2009
Connectivity Advanced Page, Keep Alive Tab	New feature	August 2009
Connectivity Advanced Page, ID-IP Mapping Tab	Moved from Connectivity Basic Page to Connectivity Advanced Page	August 2009
Services Page, Definition Tab	Changed the name (was previously Service Definition). Changed the structure. Added parameters related to Idle Mode. Added Basic Rate parameters (moved from previous Radio Advanced Page, Rate Adaptation Tab). Removed Max Sub-Burst Size and Target Packet Error Rate.	August 2009
Services Page, Mapping Tab	Removed SDU Size. Updated limitation in Service Name. Updated supported options for R1 Profile Data Delivery/Scheduling Type. Updated limitations for R1 Profile Priority, Min. Reserved Traffic Rate, Max. Sustained Traffic Rate, Latency. Updated range for R6 Profile parameters: Min. Reserved Traffic Rate, Max. Sustained Traffic Rate. Updated range for Map to R1 Profile parameters: Min. Reserved Traffic Rate, Max. Sustained Traffic Rate.	August 2009
Duplicate Site Manager	New name (was previously Offline Configuration Manager)	August 2009
Duplicate Site Manager, Twin-Site Creation wizard, Step 2	Modified structure. Updated range for Site Address. Added IP Routing section. Added comments on applicability of Connectivity parameters.	August 2009

Topic	Description	Date Issued
Duplicate Site Manager, Twin-Site Creation wizard, Step 3	Added Service Interfaces section.	August 2009
Duplicate Site Manager, Twin-Site Creation wizard, Step 4	Updated names of some parameters. Removed Number Of Sub-Channels (UL Data Zone). Added Paging Group ID. Updated range for Center Frequency.	August 2009
Duplicate Site Manager, Twin-Site Creation wizard, Step 5	Removed: Altitude, Electrical Azimuth Adjustment Antenna Heading is not mandatory.	August 2009
File Manager	Updated to reflect all GUI changes of Management System Infrastructure Version 4.5. Added in Equipment File Manager: SW Vesion, Status. In Duplicate Site File Manager: Added NE, updated descriptions of Site IP and Site ID.	August 2009
Tasks	Updated to reflect all GUI changes of Management System Infrastructure Version 4.5. Updated to reflect the new Task Wizard. Added CLI Task. Added Neighboring Task. Added Multiple Configuration Task	August 2009
Template Manager	New feature	August 2009
Parameters Summary	Updated to reflect all changes of release 2.5.2 including updated ranges/defaults.	August 2009
Supported equipment	Updated manual to reflect support for Mini-Centralized ASN-GW	October 2009
Enabling Discover	Updated sections on VLAN Translation, External Management Interface and Static Route Definition.	October 2009
AAA Page	Added VLAN Classifier Bit Alignment	November 2009
Service Group Page-Service Groups Tab, Template Manager	Added new options to Agent Circuit ID and Agent Remote ID. Corrected Suboptions numbers.	November 2009

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About This Manual

This manual describes how to use AlvariSTAR and AlvariCRAFT Device Driver Version 2.5 for managing 4Motion BTS and Mini-Centralized ASN-GW equipment running SW Versions 2.5 (NPU and AU).

This manual is intended for personnel responsible for managing the equipment system using the AlvariSTAR Element Management System and/or the AlvariCRAFT Local CRAFT Utility. It is assumed that the reader is familiar with the operation and use of AlvariSTAR, AlvariCRAFT, and with the operation and administration of 4Motion BTS system components and/or the Mini-Centralized ASN-GW. For more information refer to the AlvariSTAR and AlvariCRAFT User Manual and to the relevant equipment System Manuals.

In this manual, Network Management System refers to AlvariSTAR, and Local CRAFT Utility refers to AlvariCRAFT. Unless otherwise stated, all features are applicable to both AlvariSTAR and AlvariCRAFT. Limitations on AlvariCRAFT due to the single device restriction are noted in a Note specific to the application, as follows:

LOCAL CRAFT NOTE

This feature is not applicable to the Local CRAFT Utility.

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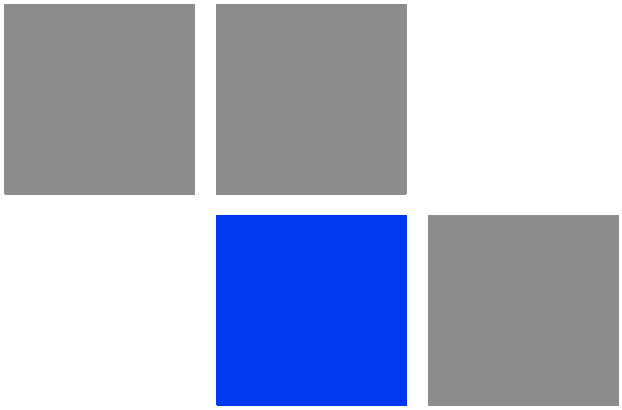


Chapter 1

Enabling Discovery

To allow remote management of the site and to enable discovery by the management system, some basic parameters must be configured locally using CLI via the MON port of the equipment.

Refer to the equipment System Manual for information on how to access the CLI either via the MON port or via Telnet and how to use it.

The following configuration steps describe the minimum mandatory configuration actions required:

1 **Clear Previous Configuration:**

Clear existing site configuration (must be executed for "used" NPUs): Restore to factory default and reboot using the following command:

npu# restore-factory-default

2 **Connectivity Mode:**

The connectivity mode determines how traffic is to be routed between the NPU and the BSs, AAA server and external Management System servers.

The default connectivity mode is In-Band (IB) via the Data port. Alternatively, the NPU can be managed Out-Of-Band (OOB) via the dedicated Management port. In Unified mode the bearer IP domain and external management IP domain (via the Data port) are unified.

To view the current and configured connectivity mode, use the command:
npu# show connectivity mode

To change the connectivity mode to Out-Of-Band, use the command:
npu(config)# connectivity mode outband.

3 **VLANs Translation (In-Band Connectivity Mode):**

The Data port operates in VLAN-aware bridging mode (tagged-trunk mode). The values configured for VLAN ID(s) used on this port are the VLAN IDs used internally. These are the VLAN ID for the bearer IP interface (the default is 11) and, in In-Band Connectivity mode, the VLAN ID of the external-management IP interface (the default is 12).

When using In-Band connectivity via the Data port, if the value of the VLAN ID used for management in the backbone differs from the value configured for the

external-management interface, the external-management VLAN ID should be translated accordingly. It is recommended to configure also VLAN translation for the bearer interface.

To enable VLAN translation and configure the required VLANs translation, run the following commands (the examples are for backhaul Data VLAN ID 30 and Management VLAN ID 31, assuming the default VLAN IDs for external-management and bearer interfaces):

a. Enable the Data port configuration mode:
npu(config)# interface gigabitethernet 0/10

b. Enable VLAN translation: *npu(config-if)# vlan mapping enable*

c. Translate data VLAN 11 to the backhaul data VLAN 30:
npu(config-if)# vlan mapping 11 30

d. Translate management VLAN 12 to the backhaul management VLAN 31:
npu(config-if)# vlan mapping 12 31

e. Exit the interface configuration mode: npu(config-if) exit

f. To view the VLAN mapping parameters, run the command:
npu# show interface gigabitethernet 0/10 vlan mapping

4 **External Management Interface:**

To configure the necessary parameters of the External Management interface used for connectivity with the EMS system and Local CRAFT Utility, run the following commands:

a. Enable the External Management interface configuration mode:
npu(config)# interface external-mgmt

b. Configure the IP address (x.x.x.x) and subnet mask (y.y.y.y):
npu(config-if)# ip address x.x.x.x y.y.y.y

c. Exit the interface configuration mode: *npu(config-if) exit*

5 **Apply Changes in Site Connectivity Configuration:**

The system must be reset to apply the changes: *npu# reset*

6 **Static Route Definition:**

Static Route must be configured whenever the EMS server and the NPU are on different subnets.

Run the following command: *npu(config)# "ip route x.x.x.x y.y.y.y z.z.z.z*" (x.x.x.x y.y.y.y is the network segment of the EMS server, z.z.z.z is the next-hop IP address that should be in the segment of the external-management interface.

7 SNMP and Trap Managers Definition"

To define the communities to be used by the SNMP manager, run the command:
npu(config)# snmp-mgr ReadCommunity public ReadWriteCommunity private

For proper operation of the manager you should configure also the Trap Manager parameters and enable sending traps to the defined Trap Manager:

a *npu(config)# trap-mgr ip-source x.x.x.x port 162 TrapCommunity public* (x.x.x.x is the IP address of the EMS server).

b npu(config)# trap-mgr enable ip-source x.x.x.x

Note that if the management system is behind a NAT router, the NAT Outside IP address (the IP of the router's interface connected in the direction of the managed device LAN) must be defined in the device as a Trap Manager, with traps sending enabled. In the NAT router, Port Forwarding (NAT Traversal) must be configured for UDP and TCP ports 161 and 162 from Outside IP (connected to the managed device's LAN) to Inside IP (connected to the management system's LAN).

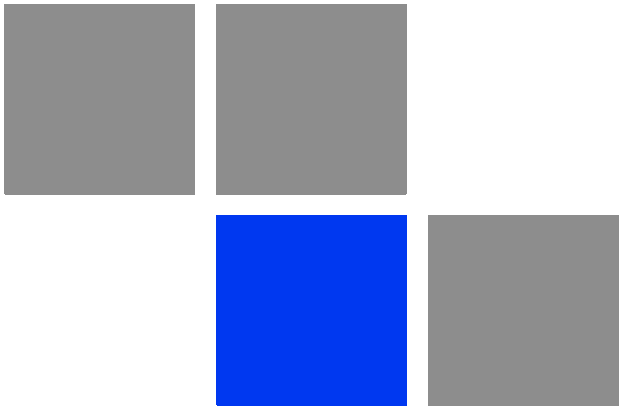
8 Site ID Definition:

To define the site ID (BTS Number): *npu(config)# site identifier x*
(x is the unique site identifier, a number in the range from 1 to 999999)

9 Save and Apply

To save the configuration run the command: npu# write (otherwise, after the next time reset you will lose the configuration changes).

To apply the new configuration run the command npu# reset.



Chapter 2

The Equipment Manager

In This Chapter:

- "The Equipment Manager" on page 7
- "The Equipment Editor" on page 11

2.1 The Equipment Manager

The Equipment Manager provides functionality and access to other managers that enables you to effectively manage equipment in your network.

To open the Equipment Manager:

Select *Managed Network* > *Equipment Manager* from the Navigation Pane or menu bar. The Equipment Manager window is displayed.

The displayed information and available features depend on the selected type of equipment. If additional device drivers are installed, click the **View** selection drop-down menu at the top of the window to select the required option.

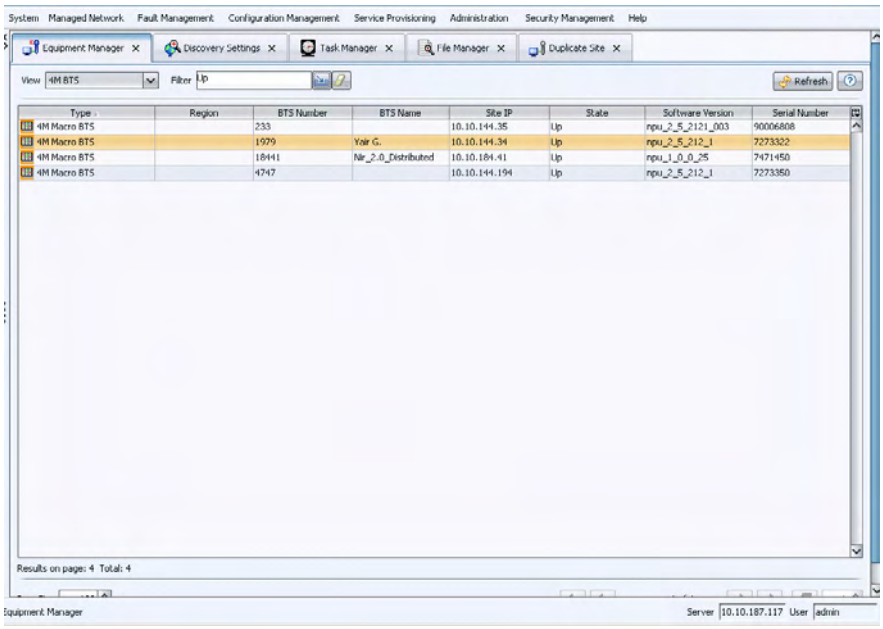


Figure 2-1: The Equipment Manager

The equipment table include all the objects that exist in the database of the management system. This includes devices that were discovered by the management system (using either Network Discovery Task or Range Discovery Task - not applicable to the Local CRAFT Utility) and devices that were added manually to the database (see **New** option below). The background color of the device's icon is in accordance with the device's alarm status (the highest severity open alarms).

You can use the Criteria Select Filters for viewing only devices that meet one or several selection criteria.

LOCAL CRAFT NOTE

The Equipment Manager in the Local CRAFT Utility enables managing a single device of a certain type. Any additional device added will not be manageable.

To manage a new device when a device of the same type already exists in the Equipment Manager, you must delete the existing entity before adding the new one. Otherwise the new entity will be added with Unlicensed state. To apply a License to the new entity, you must first delete the “older” one.

After performing the necessary changes click Retrieve to update the display.

The information displayed for each device (refreshed every 15 seconds) includes:

Parameter	Description
Type	The device’s type.
Region	The location associated with the device in the management system database.
BTS Number	The device number (Site ID) configured in the device. The BTS Number is used by the management system as the device identifier.
BTS Name	The device name configured in the device.
Site IP	The IP address of the device (this is the IP address of the interface used for managing the device). Applicable only for devices that are Up or that were reached previously
State	The management state of the device: ■ Up if the management system can communicate with and manage the device. ■ Unreachable for a device that the management system is aware of (exists in the database) but cannot be reached currently. ■ Unknown is typically a temporary status for a device that is available in the database but has never been reached in the past and its current status is unknown. After a short time its status should change to one of the other options. ■ Unlicensed: If the number of devices of a certain type in the database has reached the number of licenses for managing the specific device type, additional devices of this type added to the database will be presented as unlicensed. These devices cannot be managed by the system. The License button in the Equipment Manager will be available upon selecting unlicensed object(s), allowing to install additional licenses.
Software Version	The currently running SW version of the NPU. Applicable only for devices that are Up or that were reached previously.
Serial Number	The serial number of the NPU. Applicable only for devices that are Up or that were reached previously.

Select one or several entries and right-click to view the following management options:

Button	Description
New	Adds new equipment object to the database. Click to open the Equipment Type selection dialog box. Select the Type of device you want to add and click **OK**. The Equipment Editor opens, allowing to enter general information on the equipment to be added. For more details, see "The Equipment Editor" on page 11. NOTE: The New option is available when right-clicking anywhere in the work area, without the need to select any existing entry.
Configure	Opens the Device Manager for the selected device. Not available if two or more devices are selected or if the State of the selected device is other than Up. For more details refer to "Managing a Single Device" on page 116. NOTE: You can also open the Device Manager by double-clicking on the selected device.
Edit	Opens the Equipment Editor for the selected equipment object(s), allowing to edit general information. You can edit only the Location and Contact of multiple selected devices. You cannot change the IP address of a device. For more details, see "The Equipment Editor" on page 11.
Delete	Deletes the selected equipment object(s) from the database. The application prompts you for confirmation. You can always rediscover deleted equipment.
License	Activated only when unlicensed equipment is selected. If the number of devices of a certain type in the database has reached the number of available licenses for managing the specific device type, additional devices of this type will be presented as unlicensed. These devices cannot be managed by the system. Click on the License option to open the License Manager, enabling to view the current status of available licenses and install additional licenses if necessary..
Cut Through	Opens a Telnet session to the selected device. Not available if two or more devices are selected or if the State of the selected device is other than Up.
Open Map	Opens the location map, displaying the selected map for the applicable location. Available only when a location (Region) is assigned to the selected device. Not available if two or more devices are selected.
Performance	Opens the Performance Monitoring Viewer for the selected device. Not available if two or more devices are selected or if the State of the selected device is other than Up. For more details refer to "The Performance Viewer" on page 267.
Multiple Configuration	Opens the template-based Multiple Configuration Task, allowing simultaneous configuration of several devices. The selected devices are automatically included in the Equipment tab of the Multiple Config task. Refer to "Multiple Configuration (Template Based) Task" on page 301.

Button	Description
Backup Configuration	Opens a Configuration Backup Task for the selected device(s). Available only if the State of all selected devices is up. Refer to "Backup Configuration Task" on page 282.
Export	Exports the general information of the selected device(s) to an external Comma Separated Value (CSV) file. Opens the Exports Equipments dialog box in which you can browse to the desired location, enter a file name, and click **Export**. The information displayed for the selected device(s) in the Equipment Manager is exported.
Open Alarms	Opens the Open Alarms window, displaying the details of currently active events, Not available if two or more devices are selected or if the State is other than Up.

2.2 The Equipment Editor

The Equipment Editor enables editing NMS Reference (Location and Contact) and SNMP parameters of a selected device. For multiple devices it only enable editing the NMS Reference (Location and Contact) parameters.It also enables defining the parameters of a new device that you wish adding to the database.

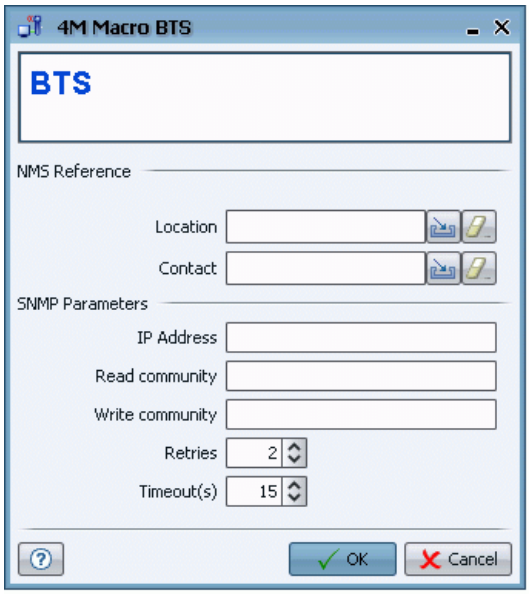


Figure 2-2: The Equipment Editor for a Single Device

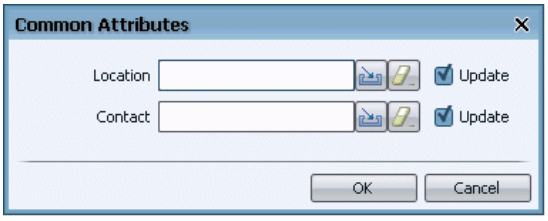
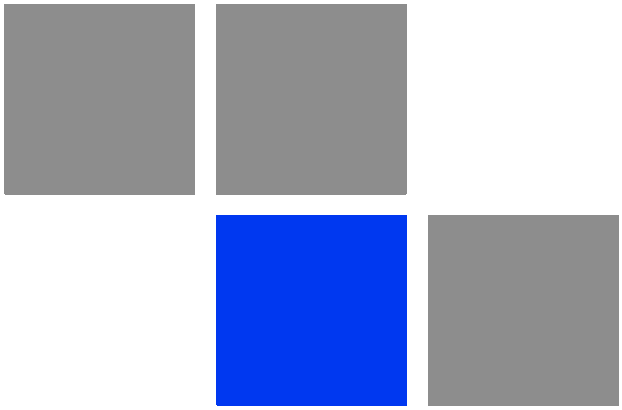


Figure 2-3: The Equipment Editor for Multiple Devices

The Equipment Editor includes the following parameters:

Parameter	Description
NMS Reference	

Parameter	Description
Location	Optional. The location (Region) associated with the device in the database of the management system (optional). Click on the Browse icon to open the Select Location window and select a location. Click the Eraser icon to clear the Location field.
Contact	Optional. The contact associated with the device in the database of the management system (optional). Click on the Browse icon to open the Select Contact window and select a contact. Click the Eraser icon to clear the Contact field.
SNMP Parameters (applicable only for a single device editor)	
IP Address	The device's IP Address. Not configurable when editing the properies of an existing object.
Read community	The Read community string (password) for SNMP get operations. This string is used by the SNMP agent to allow/disallow SNMP read access. The default Read community string is *public*.
Write community	The Write community string (password) for SNMP set operations. This string is used by the SNMP agent to allow/disallow SNMP write access. The Write community can also be used for read (get) operations. The default Write community string is *private*.
Retries	The maximum number of retries for SNMP/TFTP communication with the Device. The range is from 0 to 255. The default is 2 retries.
Timeout(s)	The maximum time in seconds that the requesting process waits for a response from the Device before attempting a retransmission (or aborting if the maximum number of retries has been reached). The available range is 1 to 3600 seconds. The default is 15 seconds.



The Network Maintenance Manager

In This Chapter:

- "The Network Maintenance Manager" on page 15
- "Retrieval of MS Data" on page 16
- "Retrieval of All MSs Data" on page 18
- "Single MS De-Registration" on page 21
- "All MSs De-Registration" on page 22

3.1 The Network Maintenance Manager

The Network Maintenance Manager supports MS-Level operations related to the display of the momentary values of a predefined set of parameters of a specific Mobile Subscriber (MS). These parameter values can to be evaluated during operator-initiated troubleshooting. In addition, this feature enables forced de-registration of one or multiple MSs from the network.

In the current release MS-level operations supported by the management system are targeted towards the ASN-GW.

To open the Network Maintenance Manager

1. Select *Managed Network* > *Network Maintenance* from the Navigation Pane or menu bar. The Network Maintenance Manager window opens.
2. In the Operation drop-down menu, select the required operation. The available options are:
   - “Retrieval of MS Data” on page 16
   - “Retrieval of All MSs Data” on page 18
   - “Single MS De-Registration” on page 21
   - “All MSs De-Registration” on page 22

3.2 Retrieval of MS Data

The Retrieval of MS Data option is used to retrieve data related to a specific MS, as maintained by the ASN-GW that currently serves the MS.

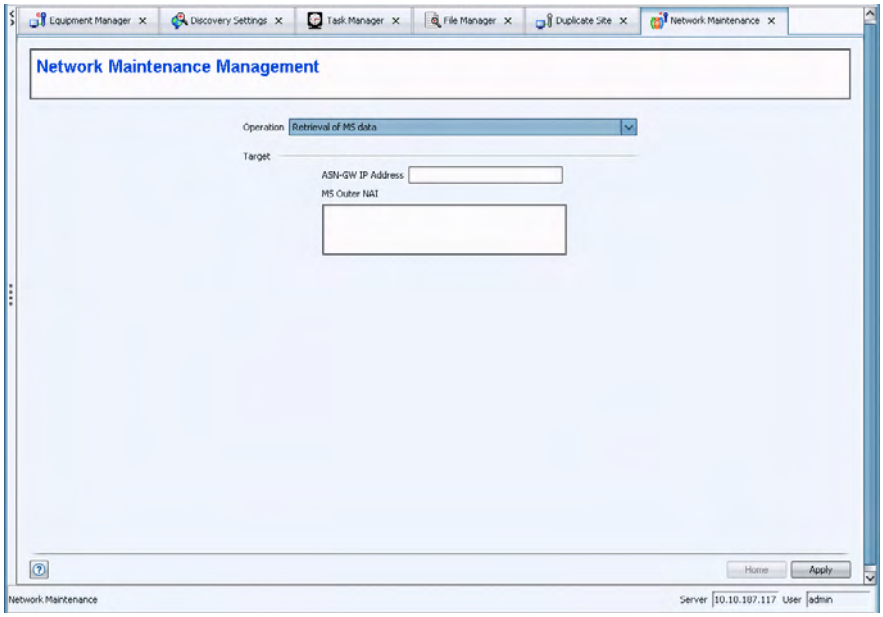


Figure 3-1: Network Maintenance - Retrieval of MS Data

To retrieve data related to a specific MS, enter the ASN-GW IP Address of the ASN-GW currently serving the MS, and the MS Outer NAI (a string of up to 253 characters). The settings of the MS identification data depends on getting this data from the AAA server.

Click **Apply** to retrieve the data for the specified MS.

The displayed details include:

Parameter	Description
Target	
ASN-GW IP Address	The IP address of the target device (Bearer interface IP address).
ASN-GW BTS Number	The BTS Number (Site ID) of the target device.
MS Outer NAI	The Outer NAI string of the selected MS.
MS Data	
MS ID (MAC Address)	the MS ID (MAC address)

Parameter	Description
Serving BS ID	The full ID of the serving BS.
Serving BS BTS Number	The BTS Number (Site ID) of the serving device.
Associated Service Flows (per flow assigned to the MS)	
SF-ID	The Service Flow ID.
Mapped GRE Key	The GRE Key mapped to the Service Flow.
Direction	The direction of the Service Flow (Up or Down).
Assigned IP Address	The assigned IP address.

The following buttons are now available:

Button	Description
Refresh	Click to refresh the displayed data.
Home	Click to return to the main Network Maintenance Management window.
De-Register MS	Click to force de-registration of the MS.

3.3 Retrieval of All MSs Data

The Retrieval of All MSs Data option is used to retrieve general details related to all MSs served by a specific ASN-GW, as maintained by the ASN-GW.

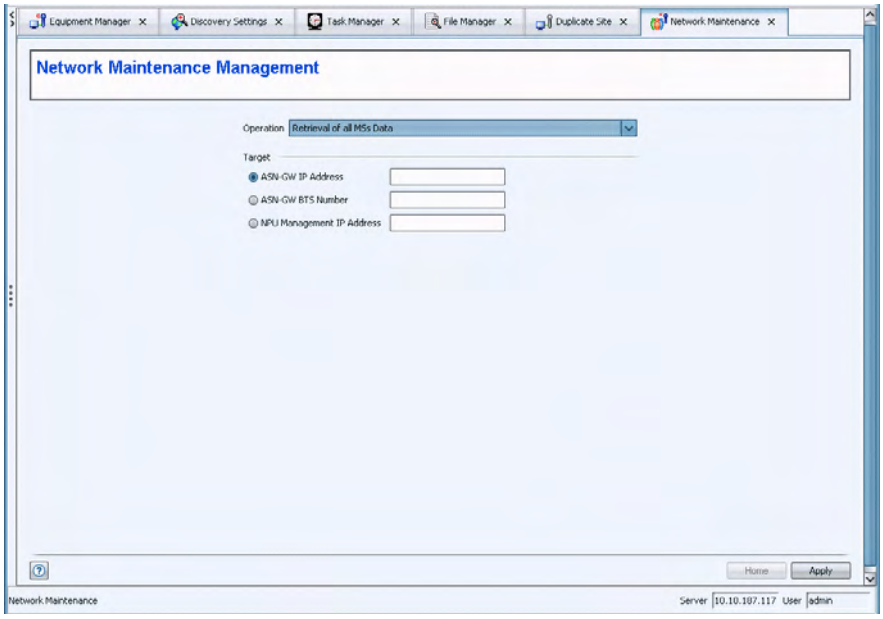


Figure 3-2: Network Maintenance - Retrieval of All MSs Data

You can select the serving entity by:

- ASN-GW IP Address (the Bearer interface IP address of the target device).
- ASN-GW BTS Number (the BTS Number of the target device).
- NPU Management IP Address (the IP address of the interface used for managing the site (NPU) to which the ASN-GW is assigned).

Select the option you want to use and enter the applicable value in the field next to the selected option.

Click **Apply** to retrieve the data for all MSs served by the specified ASN-GW.

The displayed data for all MSs served by the specified entity includes:

Parameter	Description
Target	
ASN-GW IP Address	The IP address of the target device (Bearer interface IP address).
ASN-GW BTS Number	The BTS Number (Site ID) of the target device.
MS Data (per MS served by the target device)	
MS ID	the MS ID (MAC address)
Serving BS ID	The full ID of the serving BS.

The following buttons are now available:

Button	Description
Refresh	Click to refresh the displayed data.
Home	Click to return to the main Network Maintenance Management window.
Export List to CSV	Click to open the Select Export Destination File, allowing you to export the All MSs Data to a CSV file in a selectable location.
De-Register All MSs	Click to force de-registration of all MSs served by the selected device.
Retrieve Selected MS Full Data	Select an entry in the MS Data table and click to retrieve from the ASN-GW full details for the selected MS. See below the displayed details.

The displayed full details for the selected MS include:

Parameter	Description
Target	
ASN-GW IP Address	The IP address of the target device (Bearer interface IP address).
ASN-GW BTS Number	The BTS Number (Site ID) of the target device.
MS Outer NAI	The Outer NAI string of the selected MS.
MS Data	
MS ID (MAC Address)	the MS ID (MAC address)
Serving BS ID	The full ID of the serving BS.
Serving BS BTS Number	The BTS Number (Site ID) of the serving device.
Associated Service Flows (per flow assigned to the MS)	
SF-ID	The Service Flow ID.
Mapped GRE Key	The GRE Key mapped to the Service Flow.

Parameter	Description
Direction	The direction of the Service Flow (Up or Down).
Assigned IP Address	The assigned IP address.

The following buttons are now available (in addition to the Refresh and Home buttons):

Button	Description
Retrieve All MSs Data	Click to return to the previous screen displaying summary details for all MSs served by the selected device.
De-Register MS	Click to force de-registration of the MS.
Retrieve Selected MS Full Data	Select an entry in the MS Data table and click to retrieve from the ASN-GW full details for the selected MS.

3.4 Single MS De-Registration

The Single MS De-Registration option is used to force de-registration of a specific MS.

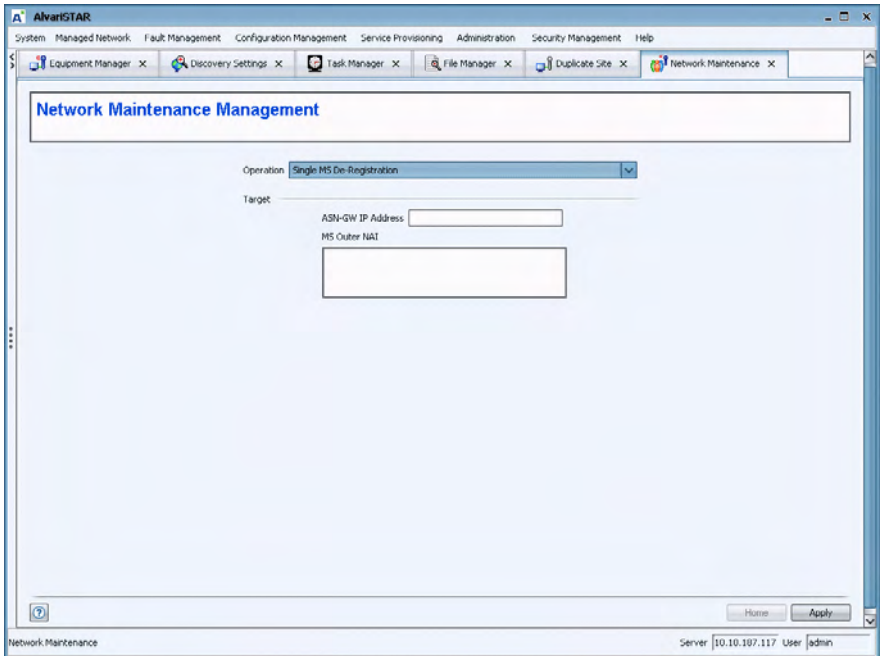


Figure 3-3: Network Maintenance - Single MS De-Registration

To force de-registration of a specific MS, enter the ASN-GW IP Address of the ASN-GW currently serving the MS, and the MS Outer NAI (a string of up to 253 characters). The settings of the MS identification data depends on getting this data from the AAA server.

Click **Apply** to force de-registration of the specified MS.

You can click **Home** to return to the main Network Maintenance Management window.

3.5 All MSs De-Registration

The All MSs De-Registration option is used to force de-registration of all MSs served by a specific device.

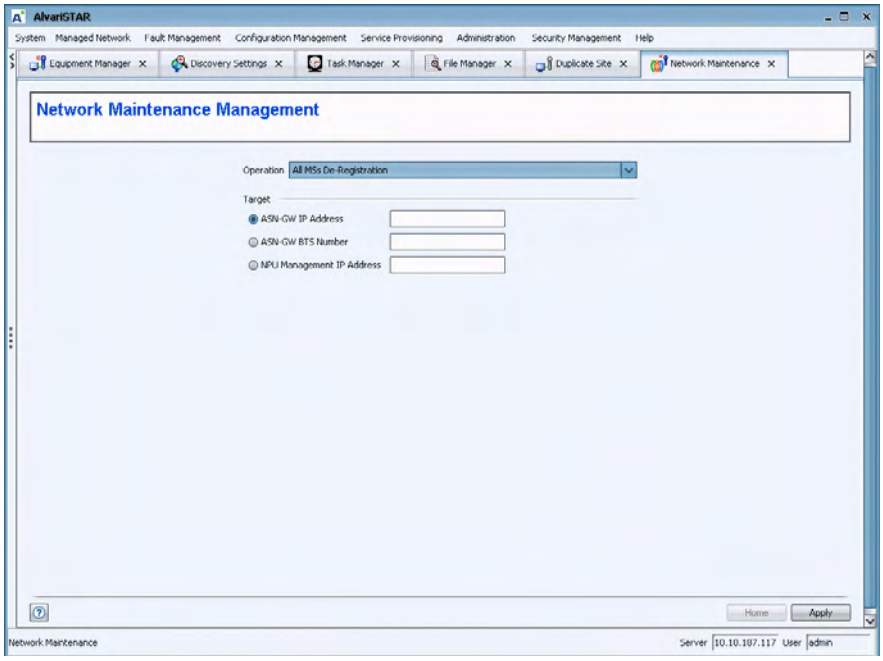


Figure 3-4: Network Maintenance - All MSs De-Registration

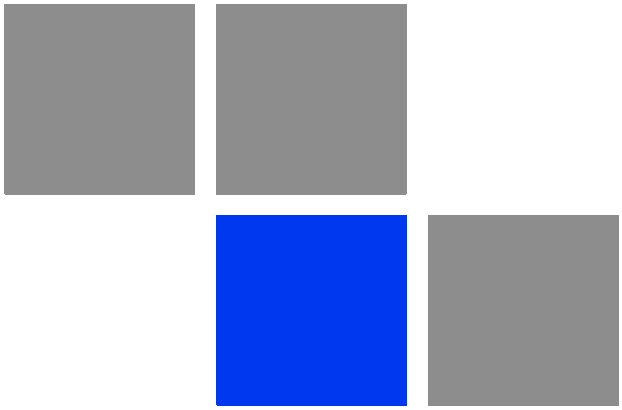
You can select the serving entity by:

- ASN-GW IP Address (the Bearer interface IP address of the target device).
- ASN-GW BTS Number (the BTS Number of the target device).
- NPU Management IP Address (the IP address of the interface used for managing the site (NPU) to which the ASN-GW is assigned).

Select the option you want to use and enter the applicable value in the field next to the selected option.

Click **Apply** to force de-registration of all MSs served by the specified device.

You can click **Home** to return to the main Network Maintenance Management window.



Chapter 4

The Template Manager

In This Chapter:

- "The Template Manager" on page 25
- "Template Modes
- "The Template Editor" on page 29
- "The Template Configuration Editor" on page 30

4.1 The Template Manager

The Template Manager enables managing equipment configuration templates that can be used for modifying configuration of selected devices using the template-based Multiple Configuration task (see "Multiple Configuration (Template Based) Task" on page 301).

NOTE

In the current release the Template Manager supports BTS equipment templates. It does not support Mini-Centralized ASN-GW templates.

To open the Template Manager

Select *Configuration Management* > *Template Manager* from the Navigation Pane or menu bar. The Template Manager window opens.

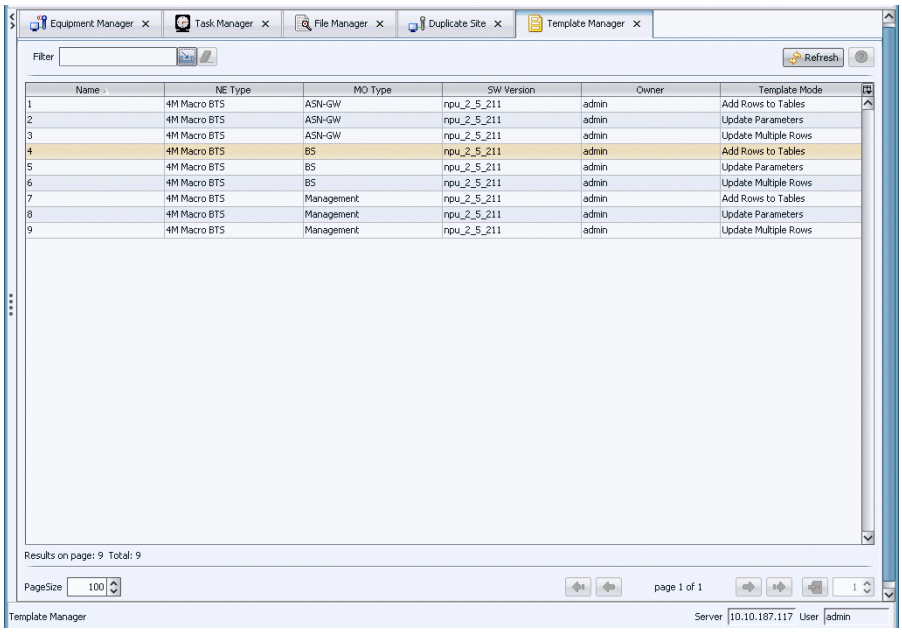

Equipment Manager
Task Manager
File Manager
Duplicate Site
Template Manager
Filter
Refresh
Name
NE Type
MO Type
SW Version
Owner
Template Mode
1 4M Macro BTS ASN-GW npu_2_5_211 admin Add Rows to Tables
2 4M Macro BTS ASN-GW npu_2_5_211 admin Update Parameters
3 4M Macro BTS ASN-GW npu_2_5_211 admin Update Multiple Rows
4 4M Macro BTS BS npu_2_5_211 admin Add Rows to Tables
5 4M Macro BTS BS npu_2_5_211 admin Update Parameters
6 4M Macro BTS BS npu_2_5_211 admin Update Multiple Rows
7 4M Macro BTS Management npu_2_5_211 admin Add Rows to Tables
8 4M Macro BTS Management npu_2_5_211 admin Update Parameters
9 4M Macro BTS Management npu_2_5_211 admin Update Multiple Rows
Results on page: 9 Total: 9
PageSize 100
page 1 of 1
Template Manager
Server 10.10.187.117 User admin

Figure 4-1: The Template Manager

You can use the Filter Criteria Manager for viewing only templates that meet one or several selection criteria.

The read-only details of displayed template are

Parameter	Description
Name	The name of the template
NE Type	The type of Network Element for which the template is prepared.
MO Type	The type of Managed Object (ASN-GW, BS, Management) for which the template is applicable.
SW Version	The SW Version used for preparing the template.
Owner	The user that created the template.
Template Mode	The mode of configuration changes that will take place when a Multiple Configuration task uses the template to modify configuration of devices For details refer to “Template Modes” on page 28.

Select one or several entries and right-click to view the following management options:

Button	Description
New	Adds a new template object to the database. Click to open the Template Editor opens, allowing to enter general information on the template to be added. For more details, see “The Template Editor” on page 29. NOTE: The New option is available when right-clicking anywhere in the work area, without the need to select any existing entry.
Edit	Not available if two or more templates are selected. Opens the Template Editor for the selected template, allowing to edit the Name and Description of the template. All other general details of an existing template cannot be modified. For more details, see “The Template Editor” on page 29.
Copy	Not available if two or more templates are selected. Opens the Template Editor for a new template, that is identical to the selected “source” template, with the default name of “Copy of <source template name>. You can edit only the Name and Description of the new template. All other general details of the new template cannot be modified. For more details, see “The Template Editor” on page 29.
Configure	Not available if two or more templates are selected. Opens the Template Configuration Editor (Configure Template) for the selected template. For more details refer to “The Template Configuration Editor” on page 30. NOTE: You can also open the Configuration Editor by double-clicking on the selected template entry.
Delete	Deletes the selected template(s) from the database. The application prompts you for confirmation.

Button	Description
Import	Imports a template XML file from the client file-system. Click to open the **Import** window, browse to the location on the client file-system where the file is stored, select the file and click **Import**. The Template Editor will open, allowing you to modify the Name and Description of the imported file. NOTE: The Import option is available when right-clicking anywhere in the work area, without the need to select any existing entry.
Export	Not available if two or more templates are selected. Exports the selected template XML file to the client file-system. Click to open the **Export** window, browse to the desired location on the client file-system, if necessary change the name to be assigned to the template file in the client file-system, and click **Export** to export the template.

4.2 Template Modes

The Template Mode defines the principles of updating target object by a Multiple Configuration task using the template. The available modes are:

- **Add Rows to Table**s: This mode is used primarily to add new entries (rows) to various tables.

  Note that if the specified index of a new row already exists in the target object, this row instance will be ignored by the target object.

- **Update Parameters**: This mode is used for updating parameters of existing tables' rows. If a specified row index does not exist, the requested changes for this row will be ignored by the target object.It is used also for updating scalar parameters.

- **Update Multiple Rows**: This mode is used primarily for updating selected parameters in all rows of applicable tables. It is used also for updating scalar parameters.

Note that there are some dependencies among certain tables that should be taken into account when designing Add Rows to Tables templates. For example, if you want to add a new Service Group associated with a new Service Interface, the Service Interface must exist in the target objects before you can add the new Service Group. This means that you have first to run a Multiple Configuration task using an Add Rows to Tables template containing the new Service Interface, and after successful completion of this task run another Multiple Configuration task using a different template containing the new Service Group.

4.3 The Template Editor

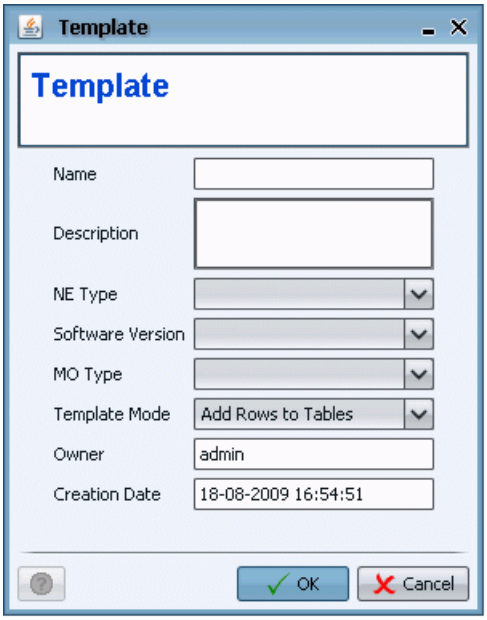


Figure 4-2: The Template Editor

The Template Editor comprises the following fields:

Parameter	Description
Name	The name of the template. A string of 1 to 128 characters.
Description	An optional free text field providing a general description of the task. A string of 0 to 250 characters.
NE Type	The type of Network Element for which the template is prepared. Can be configured only for a new template.
MO Type	The type of Managed Object (ASN-GW, BS or Management) for which the template is applicable. Can be configured only for a new template.
SW Version	The SW Version used for preparing the template. Can be configured only for a new template.
Template Mode	The mode of configuration changes that will take place when a Multiple Configuration task uses the template to modify configuration of devices. Refer to "Template Modes" on page 28. Can be configured only for a new template.
Owner	Read-only. The user that created the template.
Creation Date	Read-only. The date and time of template's creation.

4.4 The Template Configuration Editor

The Template Configuration Editor enables viewing/modifying the parameters included in the selected template.

There are two types of parameters: Scalars (a single instance in each managed object) and tables that may contain multiple rows (multiple instances of the relevant parameters in each managed object). Refer to "Managing Tables for general guidelines on managing table rows.

The template's content may vary in accordance with the specified template attributes (NE Type, MO Type, and SW Version). In the current release there are two types of templates for the following managed object types:

- "ASN-GW Template
- "BS Template
- "Management Template

4.4.1 Managing Tables

The principles of managing template tables depend on the template type:

- "Managing Tables in Add Rows to Tables Templates
- "Managing Tables in Update Parameters Templates
- "Managing Tables in Update Multiple Rows Templates

4.4.1.1 Managing Tables in Add Rows to Tables Templates

Each row in the table has one or more index numbers (or another type of unique identifier). Some rows have also a name associated with the specific entry.

To add a row to the table click on the Add button above the table. A row configuration window will open enabling you to configure the mandatory row identifier(s). If relevant, you can also configure the identification name of the row Configuring the identification name at this stage is optional. It is available for configuration also in the row's parameters editor. Note that the parameters editor allows you to later modify the row identifier(s) of the row.

The row identifier(s) in tables of Add Rows to Tables templates must be defined taking into account the relevant existing row identifier in the target objects that will participate in the Multiple Configuration task using the template. A row with row identifier(s) that already exist in the managed object will be rejected.

After clicking OK in the row configuration window a new row with the configured values is added to the table (colored green), and the parameters editor for the row is displayed on the right side, allowing you to configure parameters for the new object. After completing configuration of the new row, click on the Save button at the bottom of the page. The color of the new row will change to black.

As long as the row is colored green (not saved yet), you can remove it by clicking on the Revert button above the table.

Select a previously saved row (colored black) to edit its parameters.

To delete a previously saved row, select it and click on the Remove button above the table.

4.4.1.2 Managing Tables in Update Parameters Templates

Each row in the table has one or more row identifier(s).

To add a row to the table click on the Add button above the table. A row configuration window will open enabling you to configure the mandatory row identifier(s). Note that the parameters editor allows you to later modify the row identifier(s) of the row.

The irow identifier(s) in tables of Update Parameters templates must be defined taking into account the relevant existing row identifiers in the target objects that will participate in the Multiple Configuration task using the template. A row with row identifier(s) that do not exist in the managed object will be rejected.

After clicking OK in the row configuration window a new row with the configured values is added to the table (colored green), and the parameters editor for the row is displayed on the right side, allowing you to configure parameters for the new object. After completing configuration of the new row, click on the Save button at the bottom of the page. The color of the new row will change to black.

As long as the row is colored green (not saved yet), you can remove it by clicking on the Revert button above the table.

Select a previously saved row (colored black) to edit its parameters.

To delete a previously saved row, select it and click on the Remove button above the table.

4.4.1.3 Managing Tables in Update Multiple Rows Templates

Each table in Update Multiple Rows templates includes a single default row enabling to edit the relevant parameters for all rows in the table.

4.4.2 ASN-GW Template

The ASN-GW Template comprises the following pages:

- "AAA Page
- "Service Group Page
- "QoS Marking Page
- "SFA Page
- "Service Profile Page
- "Keep Alive Page

4.4.2.1 AAA Page

The AAA page is not applicable for Add Rows to Tables templates.

The AAA page comprises the following tabs:

- "AAA Client Tab
- "AAA Access Tab

4.4.2.1.1 AAA Client Tab

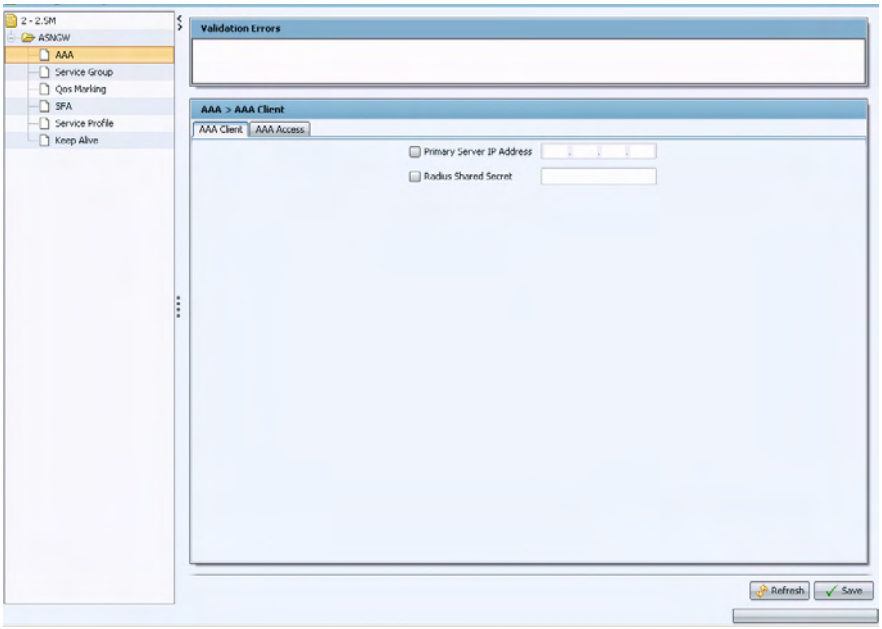


Figure 4-3: The ASN-GW Template - AAA Page - AAA Client Tab

The AAA Client parameters are:

Parameter	Description
Primary Server IP Address	The IPv4 address of the AAA server.
RADIUS Shared Secret	The shared secret between the authenticator function and the AAA server. A string of 1 to 49 characters.

4.4.2.1.2 AAA Access Tab

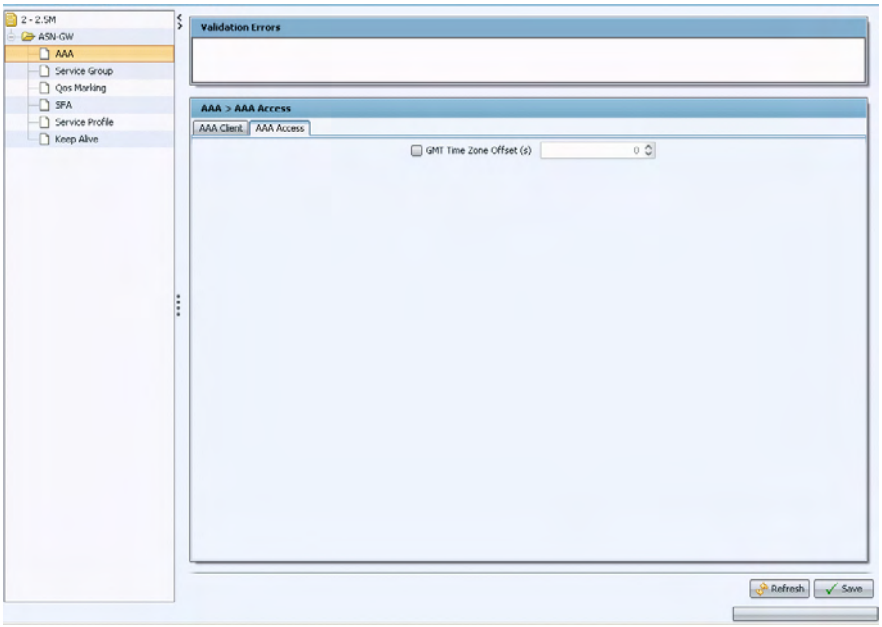


Figure 4-4: The ASN-GW Template - AAA Page - AAA Access Tab

The AAA Access parameter is:

Parameter	Description
GMT Time Zone Offset	The time zone offset, in seconds, from GMT at the NAS. The range is from 0 to 86400 seconds.

4.4.2.2 Service Group Page

The Service Group page comprises the following tabs:

- “Service Interfaces Tab
- “Service Groups Tab

4.4.2.2.1 Service Interfaces Tab

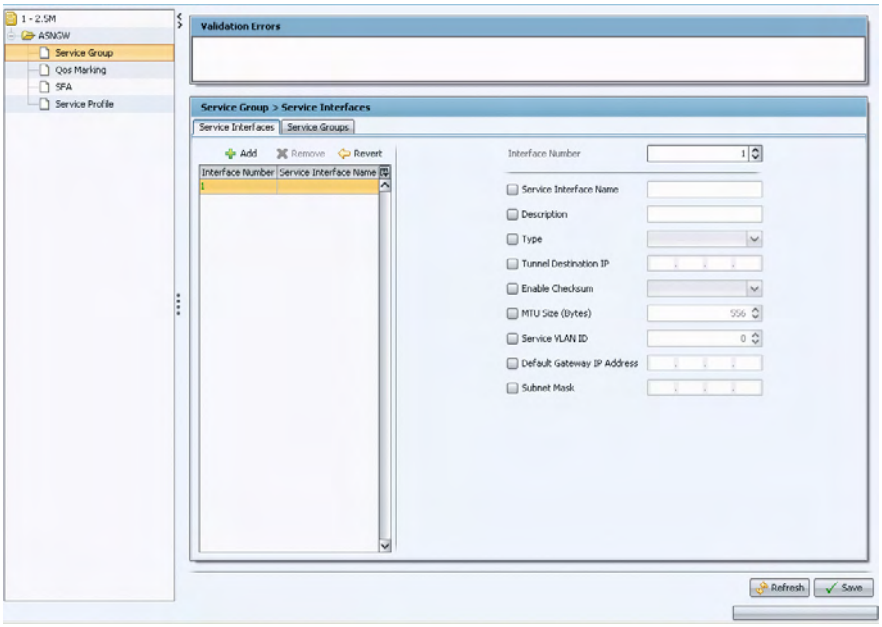


Figure 4-5: The ASN-GW Template - Service Group Page - Service Interfaces Tab (Add Rows to Tables Template)

The Service Interfaces table includes the following parameters for each row:

Parameter	Description
Interface Number	The index number of the interface (1-10). Not applicable for Update Multiple Rows templates.
Service Interface Name	Applicable only for Add Rows to Tables templates. The name (alias) of the service interface. A string of 1 to 30 characters. Must be unique in the device.

The Service Interfaces Row Editor includes the following parameters:

Parameter	Description
Interface Number	The index number of the interface (1-10). Not applicable for Update Multiple Rows templates.
Service Interface Name	Applicable only for Add Rows to Tables templates. The name (alias) of the service interface. A string of 1 to 30 characters. Must be unique in the device.
Description	A brief description of the service interface. A string of up to 70 characters.
Type	Applicable only for Add Rows to Tables templates. The type of service interface: IP-in-IP, VLAN, QinQ.

Parameter	Description
Tunnel Destination IP	Applicable only for Add Rows to Tables templates. Applicable only for IP-in-IP service interface. Configurable only when adding a new service interface.The destination IPv4 address that indicates the point of termination of the tunnel for the service interface. Must be unique among all the Host Interfaces IP's (Bearer, Local-Management, Internal-Management, External-Management) and existing instances of Service Interface's Tunnel Destination IP Address and Default Gateway IP Address. Shall not be in the subnet of any Mgmt interface (ie. Local, External and Internal).
Enable Checksum	Applicable only for IP-in-IP service interfaces. Indicates whether or not the tunnel checksum feature is enabled (yes or no).
MTU Size(Bytes)	The MTU in bytes. Received packets that are larger than the configured MTU will be dropped. The range is 556-1804.
Service VLAN ID	Applicable only for Add Rows to Tables templates. Applicable only for VLAN service interfaces. The Service Interface VLAN ID parameter. The range is 1-9, 11- to 4094. A Service Interface VLAN ID shall not conflict with other instances of Service Interface VLAN ID and VLAN IDs of Bearer, Local-Management and External-Management interaces. Shall also not conflict with CVID of any transparent MS.
Default Gateway IP Address.	Applicable only for Add Rows to Tables templates. Applicable only for VLAN service interfaces. The IP Address of the Default Gateway. Must be unique among all the Host Interfaces IP's (Bearer, Local-Management, Internal-Management, External-Management) and existing instances of Service Interface's Tunnel Destination IP Address and Default Gateway IP Address. Should be in the same subnet.with the IP Address of the DHCP server/proxy/relay to be assigned to a service group using this service interface.
Subnet Mask	Applicable only for Add Rows to Tables templates. Applicable only for VLAN service interfaces. The subnet mask of the default gateway. Should not overlap with an existing Interface subnet (host interfaces, other service interfaces).

4.4.2.2.2 Service Groups Tab

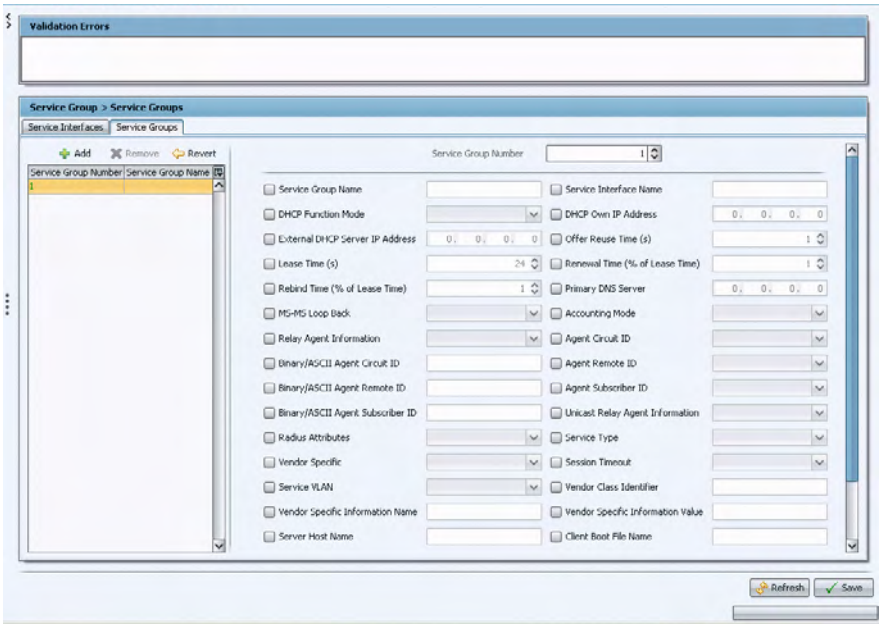


Figure 4-6: The ASN-GW Template - Service Group Page - Service Groups Tab (Add Rows to Tables Template)

The Service Groups table includes the following parameters for each row:

Parameter	Description
Service Group Number	The index number of the Service Group (1-10). Not applicable for Update Multiple Rows templates.
Service Group Name	Applicable only for Add Rows to Tables templates. The name (alias) of the service Group. A string of 1 to 30 characters. Must be unique in the device.

The Service Interfaces Row Editor includes the following parameters:

Parameter	Description
Service Group Number	The index number of the Service Group (1-10). Not applicable for Update Multiple Rows templates.
Service Group Name	Applicable only for Add Rows to Tables templates. The name (alias) of the service Group. A string of 1 to 30 characters. Must be unique in the device.

Parameter	Description
Service Interface Name	Applicable only for Add Rows to Tables templates. Applicable only for IP Service Groups. The referenced Service Interface must exist in the database of the relevant managed object. The pre-defined service interface alias used as the data path for traffic towards the core network. Note that a Service Interface can be associated only to a single Service Group.
DHCP Function Mode	Applicable only for Add Rows to Tables templates. Applicable only for IP Service Groups. The available DHCP Function Mode options: ■ Relay: The IP address is obtained using an external DHCP server (in the non-HA mode). ■ Proxy: Non-HA mode: In Non-HA mode the DHCP proxy assigns the MS, the IP address that was received from AAA in the MS profile. In HA mode the DHCP proxy assigns to the MS the IP address received in the MS profile or obtains the IP address from HA using the mobile IP.
DHCP Own IP Address	Applicable only for Add Rows to Tables templates. Applicable only for IP Service Groups. The IP address of the DHCP relay/proxy. For a service group using a VLAN service interface, should be in same subnet with the Default Gateway configured for the service interface associated with the service group. Subnet mask is taken as the default subnet mask i.e 255.255.255.0.
External DHCP Server IP Address	Applicable only for Add Rows to Tables templates. Applicable only for IP Service Groups using Relay mode. The IP address of the external DHCP server.
Offer Reuse Time	Applicable only for IP Service Groups in Server/Proxy mode. The interval, in seconds, within which the MS should send a DHCP request to accept the address sent by the NPU. If the MS does not accept the address within this period, the MS is deregistered. The range is from 1 to 120.
Default Gateway IP Address	Not applicable for Add Rows to Tables templates. Applicable only in Server/Proxy mode. In Server mode this is tP address of Default Gateway to be provided by local DHCP Server with IP address. In the Proxy mode, this value is used only if appropriate parameter is not received in RADIUS Access-Accept.

Parameter	Description
Lease Time	Applicable only for IP Service Groups in Server/Proxy mode. The lease time in seconds of IP address allocated for MS from this Service Group. The range is 24-4294967295. In the Proxy mode, this value is used only if appropriate parameter is not received in RADIUS Access-Accept.
Renewal Time	Applicable only for IP Service Groups in Server/Proxy mode. The interval, as a percentage of the Lease Time, after which the MS can request renewal of a lease that has expired. The range is from 1 to 100. The renewal Time must be lower than rebind Time. This value is used if appropriate parameter is not received in RADIUS Access-Accept
Rebind Time	Applicable only for IP Service Groups in Server/Proxy mode. The rebind interval, as a percentage of the Lease Time. This is passed to the MS (DHCP client). The range is from 1 to 99. This value is used if appropriate parameter is not received in RADIUS Access-Accept.
Primary DNS Server	Not applicable for Update Multiple Rows templates. Applicable only for IP Service Groups in Server/Proxy mode. IP Address of the first DNS Server to be provisioned to MS from this Group. In the Proxy mode, this value is used if appropriate parameter is not received in RADIUS Access-Accept.
MS-MS Loopback	Applicable only for IP Service Groups. Indicates whether MS-MS loopback is enabled or disabled for the service interface.
Accounting Mode	Accounting mode for the service interface: ■ None: No accounting support. ■ Time based: The ASN-GW send RADIUS Accounting Start/Stop Requests. The ASN-GW shall also send Interim Accounting requests to AAA server using RADIUS Accounting Interim messages on a preconfigured or negotiated interval. AAA server can send negotiated time interval in Access-Accept message. If the defined value (see Interim Interval below) is zero and there is no Acct-Interim-Interval in Access Accept, interim updates should be deactivated. ■ Volume and time based: Applicable only for IP Service Groups. Functionality is the same as for Time option above. In addition, this mode supports postpaid accounting by supporting IP Session Volume Based Accounting. The ASN-GW will report the cumulative volume counters for each MS IP Session. The counters will be collected per MS Service Flow and will be cumulated in order to get the MS IP Session counters.

Parameter	Description
Relay Agent Information	Applicable only for IP Service Groups in Relay mode. Enable/Disable Relay Agent Information (Option 82). All following parameters are applicable only if Relay Agent Information is enabled.
Agent Circuit ID and Binary/ASCII Agent Circuit ID	Applicable only for IP Service Groups in Relay mode, if Relay Agent Information and Radius Attributes are enabled. Suboption 1 of option 82. The available options are: Not Set (disable), Default, MS ID, BS ID, NAS ID, NAS IP, ASCII Agent Circuit ID, Binary Free String, Full-NAI, Domain, ASCII MS ID, ASCII BS ID . For ASCII Agent Circuit ID, enter the ID string in the **Binary/ASCII Agent Circuit ID** text box (up to 32 characters). For Binary Free String, enter a string of up to 32 hexadecimal digits (no spaces) in the **Binary/ASCII Agent Circuit ID** text box.
Agent Remote ID and Binary/ASCII Agent Remote ID	Applicable only for IP Service Groups in Relay mode, if Relay Agent Information and Radius Attributes are enabled. Suboption 2 of option 82. The available options are: Not Set (disable), Default, MS ID, BS ID, NAS ID, NAS IP, ASCII Agent Remote ID, Binary Free String Full-NAI, Domain, ASCII MS ID, ASCII BS ID. For ASCII Agent Remote ID, enter the ID string in the **Binary/ASCII Agent Remote ID** text box (up to 32 characters). For Binary Free String, enter a string of up to 32 hexadecimal digits (no spaces) in the **Binary/ASCII Agent Remote ID** text box.
Agent Subscriber ID and Binary/ASCII Agent Subscriber ID	Applicable only for IP Service Groups in Relay mode, if Relay Agent Information and Radius Attributes are enabled. Suboption 6 of option 82. The available options are: Not Set (disable), Default, MS ID, BS ID, NAS ID, NAS IP, ASCII Agent Subscriber ID, Binary Free String, Full-NAI, Domain. For ASCII Agent Subscriber ID, enter the ID string in the **Binary/ASCII Agent Subscriber ID** text box (up to 32 characters). For Binary Free String, enter a string of up to 32 hexadecimal digits (no spaces) in the **Binary/ASCII Agent Subscriber ID** text box.
Unicast Relay Agent Information	Applicable only for IP Service Groups in Relay mode, if Relay Agent Information is enabled. Indicates whether the Unicast parameter is enabled or disabled.
RADIUS Attributes	Applicable only for IP Service Groups in Relay mode, if Relay Agent Information is enabled. Indicates whether RADIUS Attributes (sub-option 7) 82 is enabled or disabled.
Service Type	Applicable only for IP Service Groups in Relay mode, if Relay Agent Information and Radius Attributes are enabled. Indicates whether Service Type (attribute 6) is enabled or disabled).
Vendor Specific	Applicable only for IP Service Groups in Relay mode, if Relay Agent Information and Radius Attributes are enabled. Indicates whether Vendor Specific (attribute 26) is enabled or disabled).

Parameter	Description
Session Timeout	Applicable only for IP Service Groups in Relay mode, if Relay Agent Information and Radius Attributes are enabled. Indicates whether Session Timeout (attribute 27) is enabled or disabled).
Service VLAN	Applicable only for IP Service Groups with an attached VLAN service interface. Indicates the status of a VLAN service interface attached to the service group. Not applicable when the attached Service Interface is IP-in-IP. If a Service Group with Service VLAN enabled is attached to a Service Profile, Service VLAN cannot be disabled.
Vendor Class Identifier	Applicable only for IP Service Groups in Server/Proxy mode. The option 60 string. Up to 30 characters. An empty string (null) means that DHCP Option 60 is disabled.
Vendor Specific Information Name	Applicable only for IP Service Groups in Server/Proxy mode. Option 43 Name string. Up to 64 characters.
Vendor Specific Information Value	Applicable only for IP Service Groups in Server/Proxy mode. Option 43 Value string. Up to 64 characters.
Server Host Name	The server host name. This parameter is sent in dhcp-offer / dhcp-ack messages and may be used by certain CPEs. A string of up to 64 characters.
Client Boot File Name	The client boot file name. This parameter is sent in dhcp-offer / dhcp-ack messages and may be used by certain CPEs. A string of up to 128 characters.
Service Group Type	Applicable only for Add Rows to Tables templates. The Service Group's type: IP, VPWS-QinQ, VPWS-Transparent, VPWS-Mapped.
Secondary DNS Server	Not applicable for Update Multiple Rows templates. Applicable only for IP Service Groups in Server/Proxy mode. IP Address of the second DNS Server to be provisioned to MS from this Group. In the Proxy mode, this value is used if appropriate parameter is not received in RADIUS Access-Accept.
Interim Interval (Min)	Not applicable if Accounting Mode (see above) is set to None. The default interval in seconds for Accounting Interim reports to be used if Acct-Interim-Interval is not received from the AAA server. Value "0" means interim reports are deactivated unless Acct-Interim-Interval is sent by the AAA server in Access Accept messages. The valid range is 0 (none) or 5-1600 (minutes).
Vid Map Start and Vid Map End	Applicable only for VPWS-Mapped Service Groups. The start and end value of the range of VLAN IDs for mapping. End value cannot be lower than Start value. None of the value within the range shall overlap with any existing infrastructue (host interfaces) VLAN IDs. None of the value within the range shall overlap with VID mapping ranges of other existing Service Groups.

4.4.2.3 QoS Marking Page

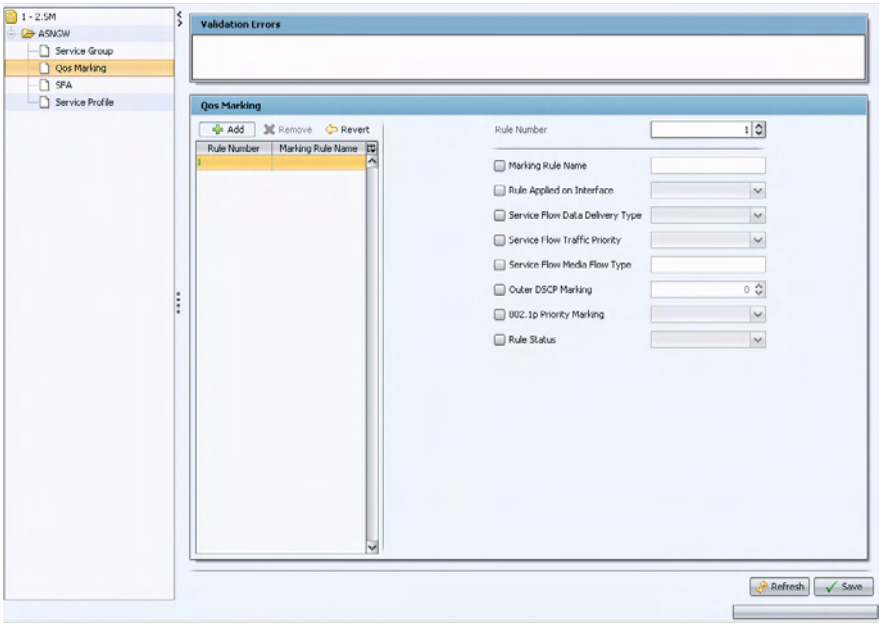


Figure 4-7: The ASN-GW Template - QoS Marking Page (Add Rows to Tables Template)

The QoS Marking table includes the following parameters for each row:

Parameter	Description
Rule Number	The index number of the rule (1-20). Not applicable for Update Multiple Rows templates. Note that default Rules Number 1 and 2 are pre-configured in the devices. These number should not be used in Add Rows to Tables templates.
Marking Rule Name	Applicable only for Add Rows to Tables templates. The name (alias) of the Marking Rule. A string of 1 to 30 characters. Must be unique in the device.

The QoS Marking Row Editor includes the following parameters:

Parameter	Description
Rule Number	The index number of the rule (1-20). Not applicable for Update Multiple Rows templates. Note that default Rules Number 1 and 2 are pre-configured in the devices. These number should not be used in Add Rows to Tables templates.
Marking Rule Name	Applicable only for Add Rows to Tables templates. The name (alias) of the Marking Rule. A string of 1 to 30 characters. Must be unique in the device.

Parameter	Description
Rule Applied on Interface	Applicable only for Add Rows to Tables templates. The type of interface for which the bearer plane QoS rule is defined: Internal (R4/R6 tunnel), External (R1), or ANY.
Service Flow Data Delivery Type	Applicable only for Add Rows to Tables templates. The type of service provided as an input parameter for the bearer plane QoS rule: UGS , RTVR; NRTVR; BE; ERTVR, or ANY.
Service Flow Traffic Priority	Applicable only for Add Rows to Tables templates. The traffic priority provided as an input parameter for the bearer plane QoS rule: 0-7 or ANY.
Service Flow Media Flow Type	Applicable only for Add Rows to Tables templates. The media type provided as an input parameter for the bearer plane QoS rule. A string of 1 to 30 characters. A value of ANY indicates that this parameter will be ignored.
Outer DSCP Marking	The Differentiated Service Code Point (DSCP) value to be used for marking the packets, if the packet complies with the marking rule's conditions. The range is from 0 to 63.
802.1p Priority Marking	The 802.1p priority to be used for marking traffic that complies with the marking rule's conditions. The range is from 0 to 7.
Rule Status	The status of the rule (Enable or Disable).

4.4.2.4 SFA Page

The SFA page comprises the following tabs:

- "SFA Config Tab
- "PHS Rules Tab
- "Classification Config Tab
- "Classification Rule Protocol Tab
- "Classification Rule Source Address Tab
- "Classification Rule Destination Address Tab
- "Classification Rule Source Port Tab
- "Classification Rule Destination Port Tab
- "Classification Rule Customer VLAN ID Tab

4.4.2.4.1 SFA Config Tab

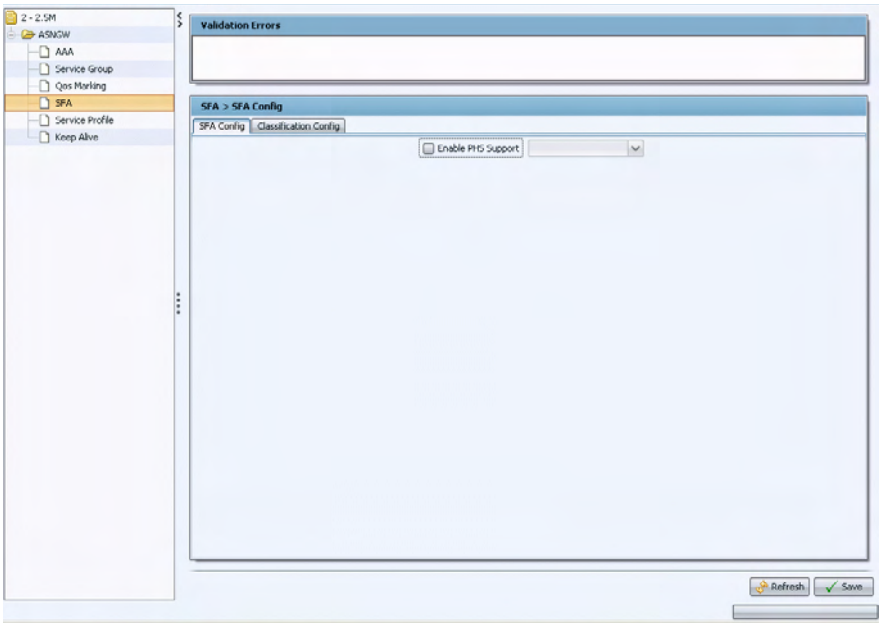


Figure 4-8: The ASN-GW Template - SFA Page - SFA Config Tab

The SFA Config tab is not applicable for Add Rows to Tables templates.

The SFA Config tab include the following parameter:

Parameter	Description
Enable PHS Support	Indicates whether or not PHS is enabled or disabled. This setting applies to all PHS rules in the managed object.

4.4.2.4.2 PHS Rules Tab

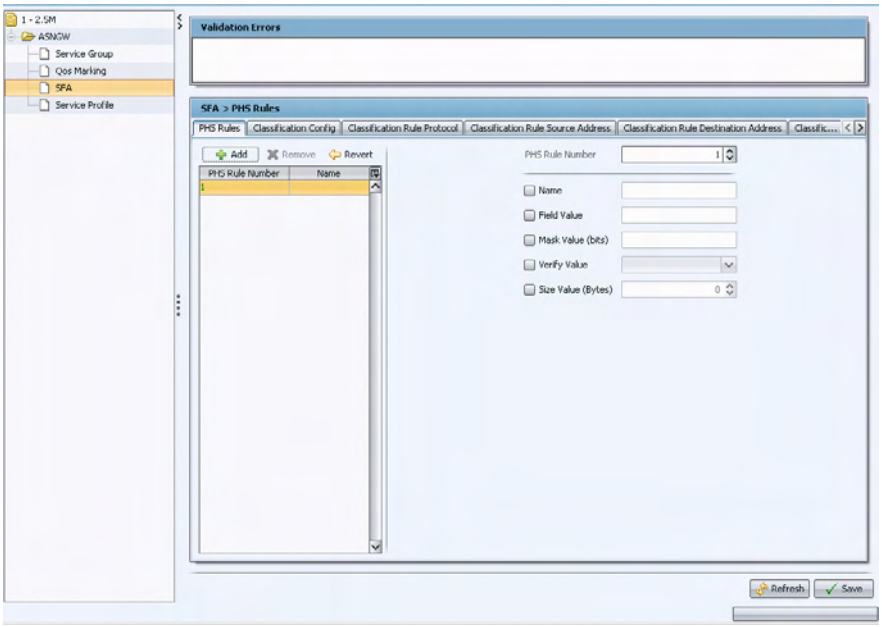


Figure 4-9: The ASN-GW Template - SFA Page - PHS Rules Tab (Add Rows to Tables Template)

The PHS Rules tab is applicable only for Add Rows to Tables templates.

The PHS Rules table includes the following parameters for each row:

Parameter	Description
PHS Rule Number	The index number of the PHS Rule (1-255).
Name	The name (alias) of the PHS Rule. A string of 1 to 30 characters. Must be unique in the device.

The PHS Rule Row Editor includes the following parameters:

Parameter	Description
PHS Rule Number	The index number of the PHS Rule (1-255).
Name	The name (alias) of the PHS Rule. A string of 1 to 30 characters. Must be unique in the device.
Field Value	The PHSF value, that is, the header string to be suppressed.
Mask Value (bits)	The PHSM that contains the bit-mask of the PHSF with the bits set that is to be suppressed.
Verify Value	Indicates whether or not the PHS header is to be verified.

Parameter	Description
Size Value (Bytes)	The size of the header to be suppressed. 0-20.

4.4.2.4.3 Classification Config Tab

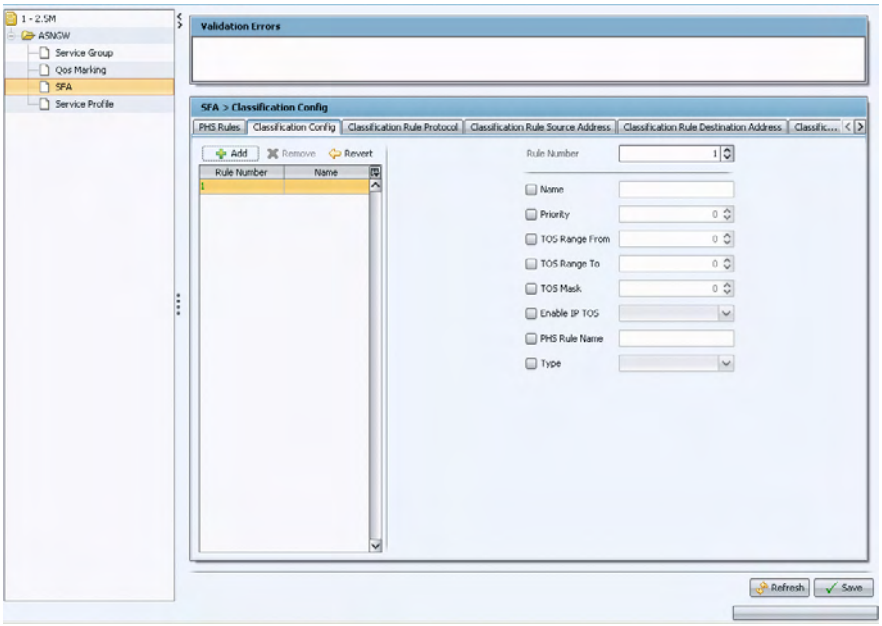


Figure 4-10: The ASN-GW Template - SFA Page - Classification Config Tab (Add Rows to Tables Template)

The Classification Config table includes the following parameters for each row:

Parameter	Description
Rule Number	The index number of the Rule (1-100). Not applicable for Update Multiple Rows templates.
Name	Applicable only for Add Rows to Tables templates. The name (alias) of the Rule. A string of 1 to 30 characters. Must be unique in the device.

The Classification Config Row Editor includes the following parameters:

Parameter	Description
Rule Number	The index number of the Rule (1-100). Not applicable for Update Multiple Rows templates.
Name	Applicable only for Add Rows to Tables templates. The name (alias) of the Rule. A string of 1 to 30 characters. Must be unique in the device.

Parameter	Description
Priority	The priority level assigned to the classification rule. The range is 0-255.
TOS Range From and TOS Range To	Relevant only if Enable IP TOS is enabled. The range of values (From-To) of the IP TOS field from the lowest value to the highest value. Values range is from 0 to 63.
TOS Mask	Relevant only if Enable IP TOS is enabled. The mask for IP TOS value.This bit mask is applied to the TOS field received in the IP header to be matched within the configured TOS range. The range is from0 to 63.
Enable IP TOS	Indicates whether the use of TOS-based classification is enabled.
PHS Rule Name	Applicable only for L3 Rules. The Packet Header Suppression (PHS) rule name associated with the classification rule. Specify the PHS rulename if you want to perform PHS for this flow. Must be a PHS Rule Name that already exists in the target managed objects.
Type	Applicable only for Add Rows to Tables templates. The rule's type: L2 or L3.

4.4.2.4.4 Classification Rule Protocol Tab

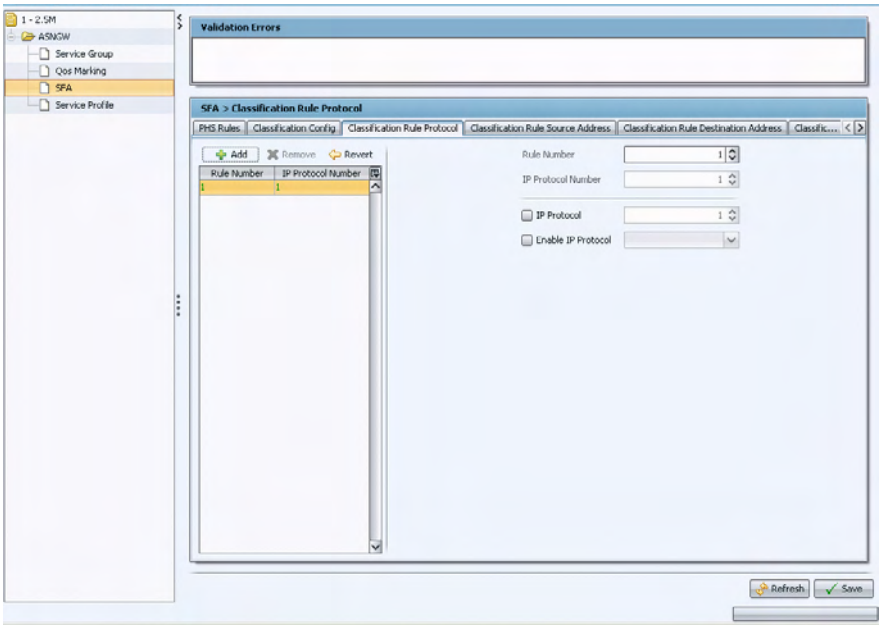


Figure 4-11: The ASN-GW Template - SFA Page - Classification Rule Protocol Tab

The Classification Rule Protocol tab is applicable only for Add Rows to Tables templates.

The Classification Rule Protocol table includes the following parameters for each row:

Parameter	Description
Rule Number	The index number of the Classification Rule (1-100). Must be a Classification Rule Number that already exists in the target managed objects. Classification Rule Protocol parameters are applicable only for L3 Rules.
IP Protocol Number	The index of the IP Protocol. IP Protocol Number is always 1 (a single entry for each Classification Rule).

The Classification Rule Protocol Row Editor includes the following parameters:

Parameter	Description
Rule Number	The index number of the Classification Rule (1-100). Must be a Classification Rule Number that already exists in the target managed objects. Classification Rule Protocol parameters are applicable only for L3 Rules.
IP Protocol Number	The index of the IP Protocol. IP Protocol Number is always 1 (a single entry for each Classification Rule).
IP Protocol	Relevant only if Enable IP Protocol is enabled. The enabled protocol number. Value is in the range 1-255 (using standard IANA protocol values).
Enable IP Protocol	Indicates whether the packet is classified based on the value of the IP protocol.

4.4.2.4.5 Classification Rule Source Address Tab

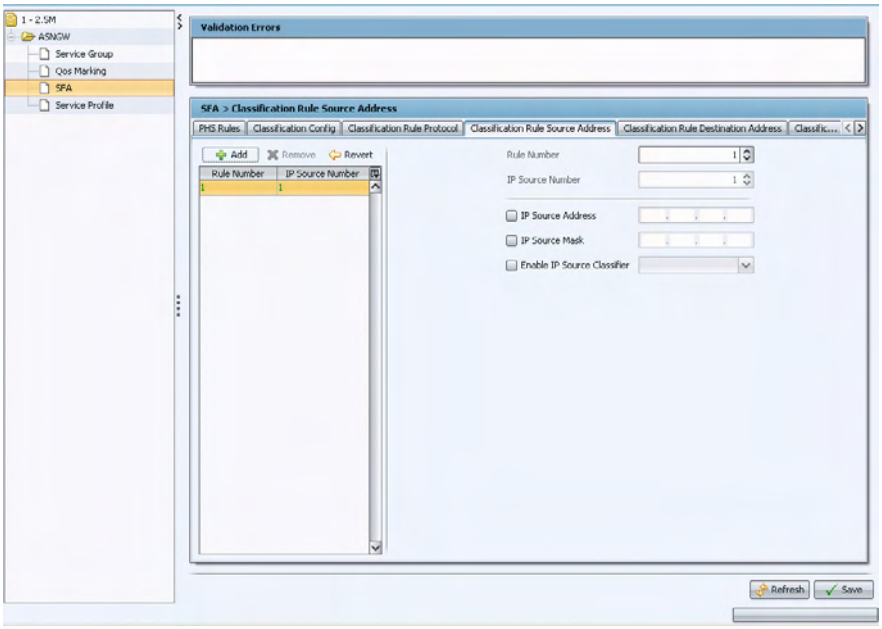


Figure 4-12: The ASN-GW Template - SFA Page - Classification Rule Source Address Tab

The Classification Rule Source Address tab is applicable only for Add Rows to Tables templates.

The Classification Rule Source Address table includes the following parameters for each row:

Parameter	Description
Rule Number	The index number of the Classification Rule (1-100). Must be a Classification Rule Number that already exists in the target managed objects. Classification Rule Source Address parameters are applicable only for L3 Rules.
IP Source Number	The index of the IP Source. IP Source Number is always 1 (a single entry for each Classification Rule).

The Classification Rule Source Address Row Editor includes the following parameters:

Parameter	Description
Rule Number	The index number of the Classification Rule (1-100). Must be a Classification Rule Number that already exists in the target managed objects. Classification Rule Source Address parameters are applicable only for L3 Rules.
IP Source Number	The index of the IP Source. IP Source Number is always 1 (a single entry for each Classification Rule).
IP Source Address	Relevant only if Enable IP Source Classifier is enabled. The IP source address enabled for the classification rule
IP Source Mask	Relevant only if Enable IP Source Classifier is enabled. The net mask field that is used to specify a range of IP source addresses.
Enable IP Source Classifer	Indicates whether the use of an associated IP source address is enabled for the classification rule.

4.4.2.4.6 Classification Rule Destination Address Tab

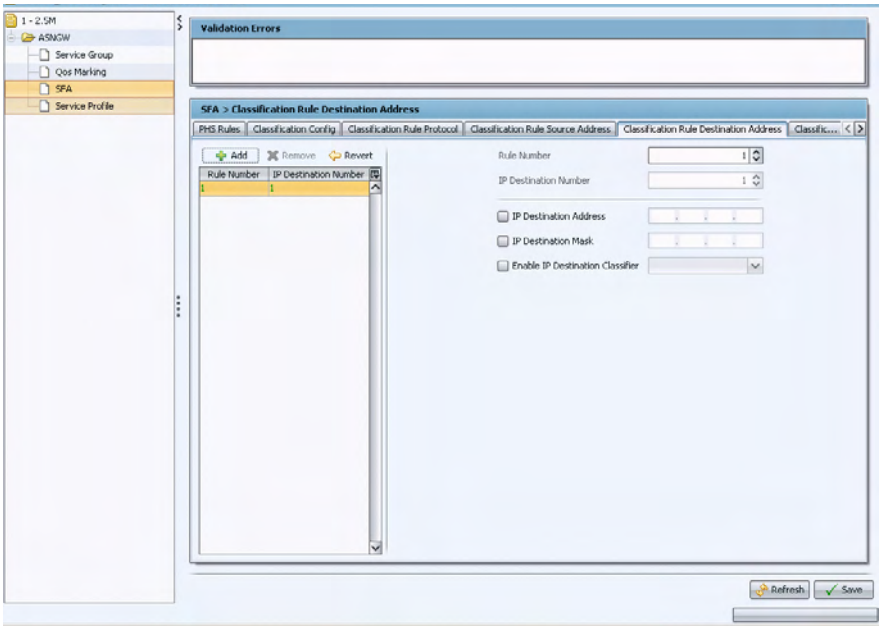


Figure 4-13: The ASN-GW Template - SFA Page - Classification Rule Destination Address Tab

The Classification Rule Destination Address tab is applicable only for Add Rows to Tables templates.

The Classification Rule Destination Address table includes the following parameters for each row:

Parameter	Description
Rule Number	The index number of the Classification Rule (1-100). Must be a Classification Rule Number that already exists in the target managed objects. Classification Rule Destination Address parameters are applicable only for L3 Rules.
IP Destination Number	The index of the IP Source. IP Destination Number is always 1 (a single entry for each Classification Rule).

The Classification Rule Destination Address Row Editor includes the following parameters:

Parameter	Description
Rule Number	The index number of the Classification Rule (1-100). Must be a Classification Rule Number that already exists in the target managed objects. Classification Rule Destination Address parameters are applicable only for L3 Rules.
IP Destination Number	The index of the IP Destination. IP Destination Number is always 1 (a single entry for each Classification Rule).
IP Destination Address	Relevant only if Enable IP Destination Classifier is enabled. The IP Destination address enabled for the classification rule
IP Destination Mask	Relevant only if Enable IP Destination Classifier is enabled. The net mask field that is used to specify a range of IP Destination addresses.
Enable IP Destination Classifer	Indicates whether the use of an associated IP Destination address is enabled for the classification rule.

4.4.2.4.7 Classification Rule Source Port Tab

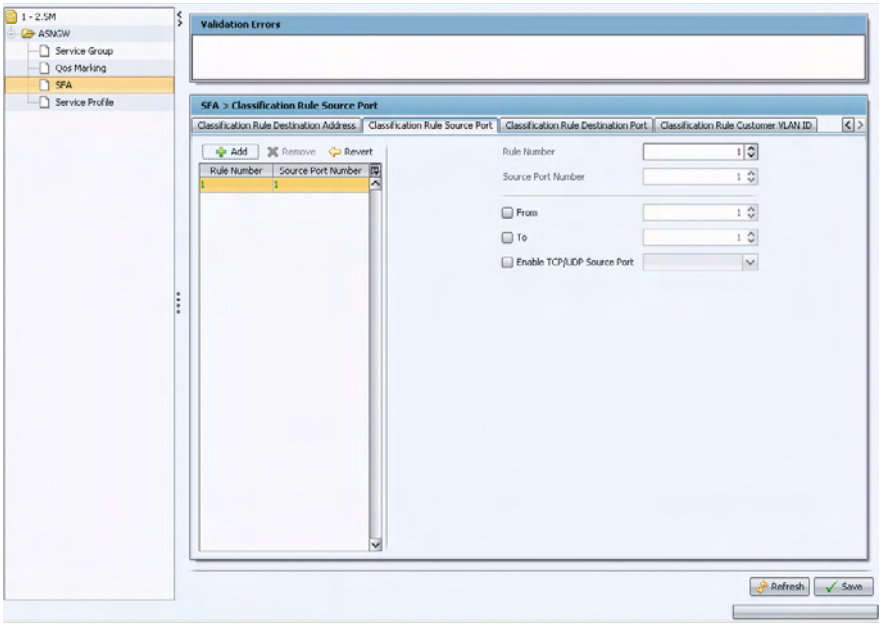


Figure 4-14: The ASN-GW Template - SFA Page - Classification Rule Source Port Tab

The Classification Rule Source Port tab is applicable only for Add Rows to Tables templates.

The Classification Rule Source Port table includes the following parameters for each row:

Parameter	Description
Rule Number	The index number of the Classification Rule (1-100). Must be a Classification Rule Number that already exists in the target managed objects. Classification Rule Source Port parameters are applicable only for L3 Rules.
Source Port Number	The index of the Source Port. Source Port Number is always 1 (a single entry for each Classification Rule).

The Classification Rule Source Port Row Editor includes the following parameters:

Parameter	Description
Rule Number	The index number of the Classification Rule (1-100). Must be a Classification Rule Number that already exists in the target managed objects. Classification Rule Source Port parameters are applicable only for L3 Rules.
Source Port Number	TThe index of the Source Port. Source Port Number is always 1 (a single entry for each Classification Rule).
From - To	Relevant only if Enable TCP/UDP Source Port is enabled. The range of values (From-To) of the source ports from the lowest value to the highest value. Values range is from 1 to 65535.
Enable TCP/UDP Source Port	Indicates whether the use of a range of source ports is enabled for the classification rule. If enabled, then Enable IP Protocol is set to enable. Protocol can be either 6 (TCP) or 17 (UDP).

4.4.2.4.8 Classification Rule Destination Port Tab

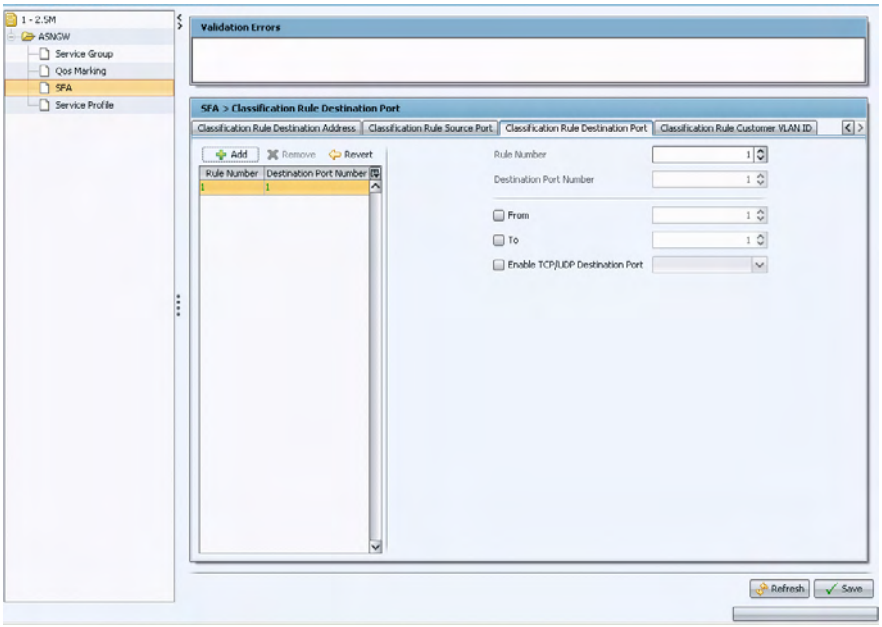


Figure 4-15: The ASN-GW Template - SFA Page - Classification Rule Destination Port Tab

The Classification Rule Destination Port tab is applicable only for Add Rows to Tables templates.

The Classification Rule Destination Port table includes the following parameters for each row:

Parameter	Description
Rule Number	The index number of the Classification Rule (1-100). Must be a Classification Rule Number that already exists in the target managed objects. Classification Rule Destination Port parameters are applicable only for L3 Rules.
Destination Port Number	The index of the Destination Port. Destination Port Number is always 1 (a single entry for each Classification Rule).

The Classification Rule Destination Port Row Editor includes the following parameters:

Parameter	Description
Rule Number	The index number of the Classification Rule (1-100). Must be a Classification Rule Number that already exists in the target managed objects. Classification Rule Destination Port parameters are applicable only for L3 Rules.

Parameter	Description
Destination Port Number	TThe index of the Destination Port. Destination Port Number is always 1 (a single entry for each Classification Rule).
From - To	Relevant only if Enable TCP/UDP Destination Port is enabled. The range of values (From-To) of the Destination ports from the lowest value to the highest value. Values range is from 1 to 65535.
Enable TCP/UDP Destination Port	Indicates whether the use of a range of Destination ports is enabled for the classification rule. If enabled, then Enable IP Protocol is set to enable. Protocol can be either 6 (TCP) or 17 (UDP).

4.4.2.4.9 Classification Rule Customer VLAN ID Tab

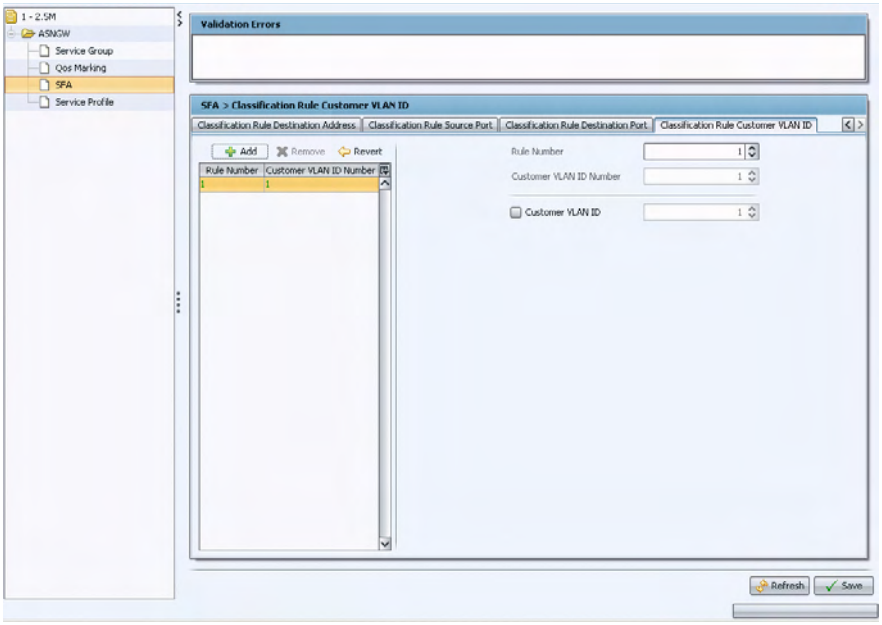


Figure 4-16: The ASN-GW Template - SFA Page - Classification Rule Customer VLAN ID Tab

The Classification Rule Customer VLAN ID tab is applicable only for Add Rows to Tables templates.

The Classification Rule Customer VLAN ID table includes the following parameters for each row:

Parameter	Description
Rule Number	The index number of the Classification Rule (1-100). Must be a Classification Rule Number that already exists in the target managed objects. Classification Rule Destination Port parameter is applicable only for L2 Rules.
Customer VLAN ID Number	The index of the Customer VLAN ID. Customer VLAN ID Number is always 1 (a single entry for each Classification Rule).

The Classification Rule Customer VLAN ID Row Editor includes the following parameters:

Parameter	Description
Rule Number	The index number of the Classification Rule (1-100). Must be a Classification Rule Number that already exists in the target managed objects. Classification Rule Destination Port parameter is applicable only for L2 Rules.
Customer VLAN ID Number	The index of the Customer VLAN ID. Customer VLAN ID Number is always 1 (a single entry for each Classification Rule).
Customer VLAN ID	The Customer VLAN ID value to be assigned to the classification rule. The range is 1-4094.

4.4.2.5 Service Profile Page

The Service Profile page comprises the following tabs:

- "Service Profile Config Tab
- "Service Flow Tab
- "UL/DL Reference Classification Rule Tabs

4.4.2.5.1 Service Profile Config Tab

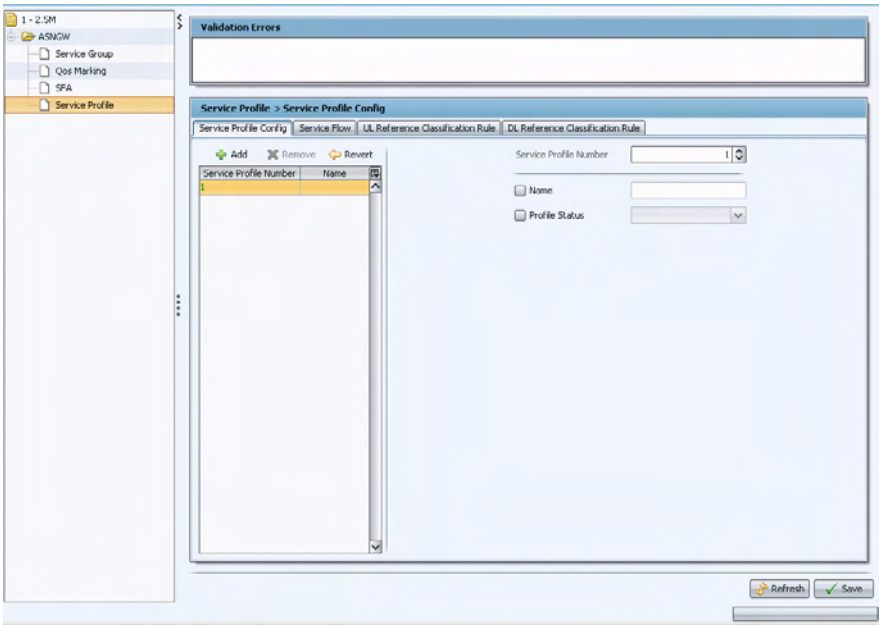


Figure 4-17: The ASN-GW Template - Service Profile Page - Service Profile Config Tab (Add Rows to Tables Template)

The Service Profile Config table includes the following parameters for each row:

Parameter	Description
Service Profile Number	The index number of the Service Profile (1-64). Not applicable for Update Multiple Rows templates.
Name	Applicable only for Add Rows to Tables templates. The name (alias) of the Service Profile. A string of 1 to 30 characters. Must be unique in the device.

The Service Profile Config Row Editor includes the following parameters:

Parameter	Description
Service Profile Number	The index number of the Service Profile (1-64). Not applicable for Update Multiple Rows templates.
Name	Applicable only for Add Rows to Tables templates. The name (alias) of the Service Profile. A string of 1 to 30 characters. Must be unique in the device.
Profile Status	Indicates whether the profile is enabled or disabled. when adding a new service profile, the status can't be enabled. only after associating a service flow, the status can be updated to enabled.

4.4.2.5.2 Service Flow Tab

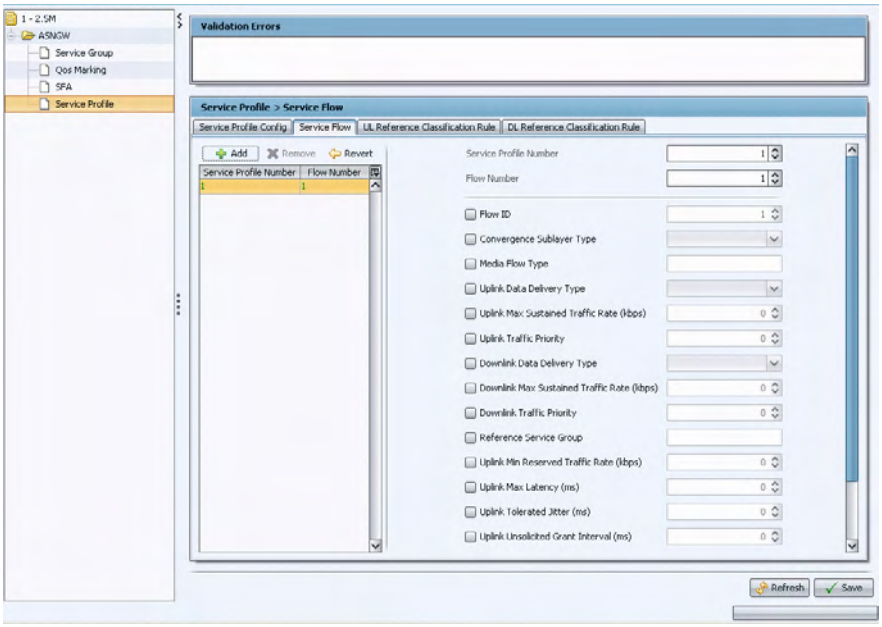


Figure 4-18: The ASN-GW Template - Service Profile Page - Service Flow Tab (Add Rows to Tables Template)

The Service Flow table includes the following parameters for each row:

Parameter	Description
Service Profile Number	The index number of the Service Profile (1-64). Must be a number of a Service Profile that already exists in the target managed objects. Not applicable for Update Multiple Rows templates.
Service Flow Number	The index number of the Service Flow (1-12). Not applicable for Update Multiple Rows templates.

The Service Flow Row Editor includes the following parameters:

Parameter	Description
Service Profile Number	The index number of the Service Profile (1-64). Must be a number of a Service Profile that already exists in the target managed objects. Not applicable for Update Multiple Rows templates.
Service Flow Number	The index number of the Service Flow (1-12). Not applicable for Update Multiple Rows templates.
Flow ID	The flow ID of the service flow. A number in the range 1-255..

Parameter	Description
Convergence Sublayer Type	Convergence Sublayer Type: ipv4cs or vlancs. vlancs service flows can be defined only for the Default Service Profile.
Media Flow Type	The type of media carried by the service flow. An optional string of up to 32 characters.
Uplink Data Delivery Type	The data delivery type for uplink traffic carried by the service flow. The available options are UGS; RTVR; NRTVR; BE; ERTVR and ANY.)
Uplink Max. Sustained Traffic Rate (Kbps)	The maximum sustained traffic rate, in Kbps, for uplink traffic carried by the service flow. The range is 10-40000. Relevant only for service flows with the appropriate uplink data delivery type (NRTVR, RTVR, BE, ERTVR, ANY)
Uplink Traffic Priority	The traffic priority to be applied to the uplink traffic carried by the service flow. The range is 0-7. Not applicable for UGS data delivery type.
Downlink Data Delivery Type	The data delivery type for downlink traffic carried by the service flow. The available options are UGS; RTVR; NRTVR; BE; ERTVR and ANY.)
Downlink Max. Sustained Traffic Rate (Kbps)	The maximum sustained traffic rate, in Kbps, for downlink traffic carried by the service flow. The range is 10-40000. Relevant only for service flows with the appropriate downlink data delivery type (NRTVR, RTVR, BE, ERTVR, ANY)
Downlink Traffic Priority	The traffic priority to be applied to the downlink traffic carried by the service flow. The range is 0-7. Not applicable for UGS data delivery type.
Reference Service Group	The Name of the Service Group to be used by the service flow. Must be the name of a Service Group that already exists in the target managed objects.
Uplink Min. Reserved Traffic Rate (Kbps)	The minimum reserved traffic rate, in Kbps, for uplink traffic carried by the service flow. The range is 0-40000. Relevant only for service flows with the appropriate uplink data delivery type (UGS, NRTVR, RTVR, ERTVR). For NRTVER, RTVR and ERTVR-cannot be higher than the Max. Sustained Traffic Rate.
Uplink Max. Latency (ms)	The maximum latency in ms allowed in the uplink service flow. The range is 0-4294967295. Relevant only for service flows with the appropriate uplink data delivery type (UGS, RTVR, ERTVR).
Uplink Tolerated Jitter (ms)	the maximum delay variation (jitter) in milliseconds for this uplink service flow. The range is 0- 4294967295. Relevant only for service flows with the appropriate uplink data delivery type (UGS, ERTVR).

Parameter	Description
Uplink Unsolicited Grant Interval (ms)	The nominal interval in ms between successive data grant opportunities for this uplink service flow. The range is 0-65535. Must be lower than Uplink Max. Latency. Relevant only for uplink service flows with the appropriate uplink data delivery type (UGS, ERTVR).
Downlink Min. Reserved Traffic Rate (Kbps)	The minimum reserved traffic rate, in Kbps, for downlink traffic carried by the service flow. The range is 0-40000. Relevant only for service flows with the appropriate downlink data delivery type (UGS, NRTVR, RTVR, ERTVR). For NRTVER, RTVR and ERTVR-cannot be higher than the Max. Sustained Traffic Rate.
Downlink Max. Latency (ms)	The maximum latency in ms allowed in the downlink service flow. The range is 0-4294967295. Relevant only for service flows with the appropriate downlink data delivery type (UGS, RTVR, ERTVR).
Downlink Tolerated Jitter (ms)	the maximum delay variation (jitter) in milliseconds for this downlink service flow. The range is 0- 4294967295. Relevant only for service flows with the appropriate downlink data delivery type (UGS, ERTVR).

4.4.2.5.3 UL/DL Reference Classification Rule Tabs

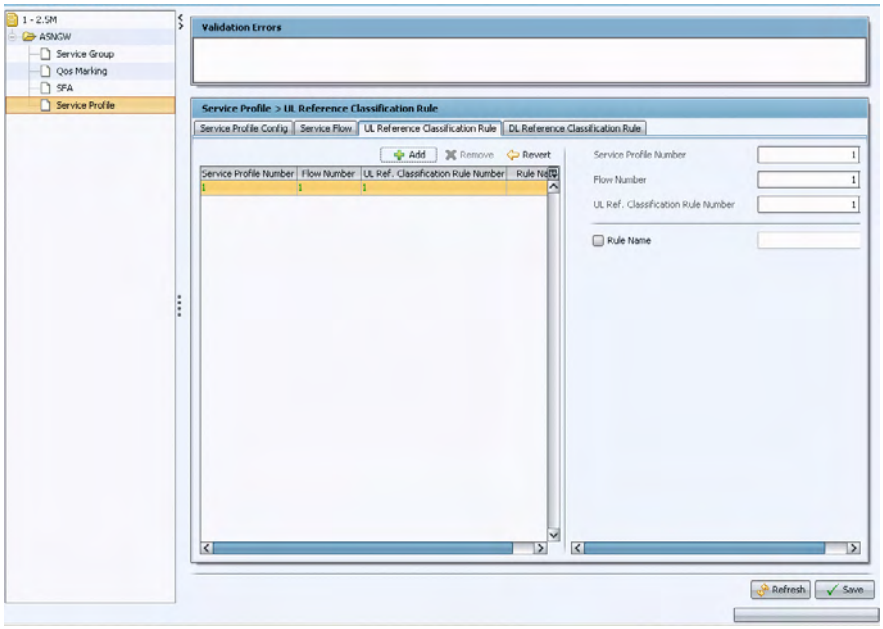


Figure 4-19: The ASN-GW Template - Service Profile Page - UL Reference Classification Rule Tab

The UL/DL Reference Classification Rule tables are applicable only for Add Rows to Tables templates. They includes the following parameters for each row:

Parameter	Description
Service Profile Number	The index number of the Service Profile (1-64). Must be a number of a Service Profile that already exists in the target managed objects.
Service Flow Number	The index number of the Service Flow (1-12). Must be a number of a Service Flow that already exists in the target managed objects.
UL/DL Ref. Classification Rule Number	The index number of the UL/DL Reference Classification Rule (1-6).
Rule Name	The name of the associated Classification Rule. Must be a name of a Classification Rule that already exists in the target managed objects

The UL/DL Reference Classification Rule Row Editors include the same parameters as in the tables described above.

4.4.2.6 Keep Alive Page

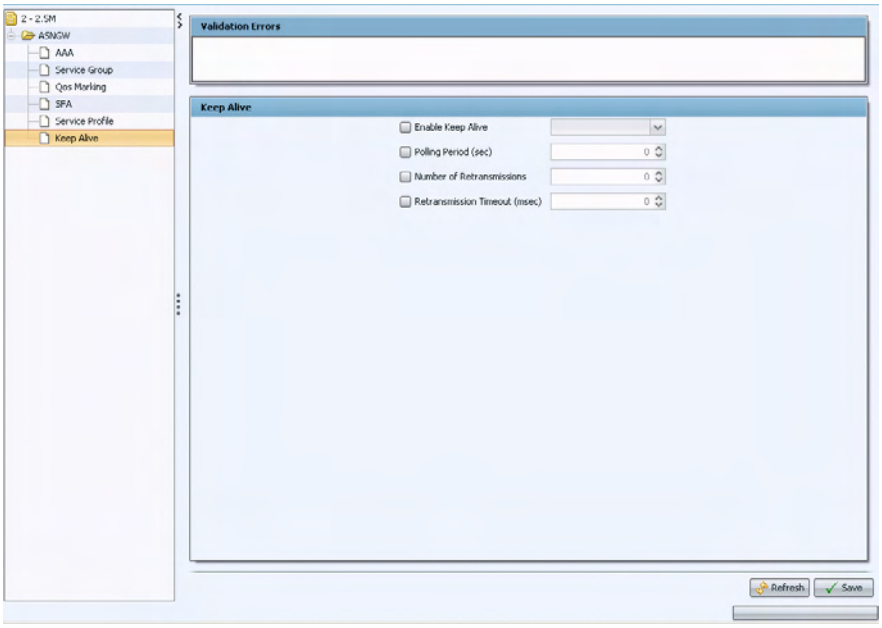


Figure 4-20: The ASN-GW Template - Keep Alive Page

The Keep Alive page is not applicable for Add Rows to Tables templates.

The Keep Alive page includes the following parameters:

Parameter	Description
Enable Keep Alive	This parameter enable/disable the ASN-GW keep-alive mechanism. The following parameters are applicable only if Keep Alive is enabled.
Polling Period	The period In seconds between polling sessions. The range is from 10 to 1000 seconds. Polling Period x 1000 (value in milliseconds) cannot be lower than Retransmission Timeout x (Number of Retransmissions+1)
Number of Retransmissions	Maximum number of retries if Retransmission Timeout has expired without getting a response. The range is from 1 to 10.
Retransmission Timeout	Time in milliseconds to wait for a response before initiating another polling attempt or reaching a decision that the polled entity has failed (if the maximum number of retries set by Number of Retransmissions has been reached). The range is from 5000 to 10000 milliseconds (5 to 10 second).

4.4.3 BS Template

The BS Template comprises the following pages:

- "Radio Basic Page
- "Radio Advanced Page
- "Connectivity Basic Page
- "Connectivity Advanced Page
- "Services Page

4.4.3.1 Radio Basic Page

The Radio Basic page comprises the following tabs:

- "General Def Tab
- "RF Tab
- "Base Band Tab

- "Idle Mode Tab
- "Air Frame Structure Tab
- "Triggers Tab

4.4.3.1.1 General Def Tab

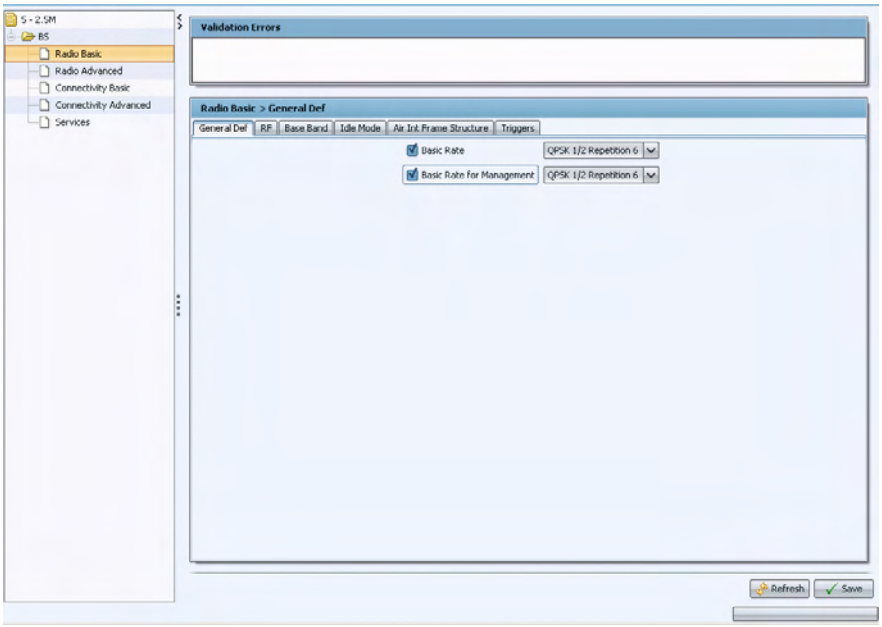


Figure 4-21: The BS Template -Radio Basic Page - General Def Tab

The General Def tab is not applicable for Add Rows to Tables templates.

The General Def parameters are:

Parameter	Description
Basic Rate	The uplink basic rate. ■ QPSK 1/2 Repetition 6 ■ QPSK 1/2 Repetition 4 ■ QPSK 1/2 Repetition 2 ■ QPSK 1/2 ■ QPSK 3/4 ■ 16-QAM 1/2 ■ 16-QAM 3/4 ■ 64-QAM 1/2 ■ 64-QAM 2/3 ■ 64-QAM 3/4 ■ 64-QAM 5/6
Basic Rate for Management	The downlink basic rate for management. ■ QPSK 1/2 Repetition 6 ■ QPSK 1/2 Repetition 4 ■ QPSK 1/2 Repetition 2 ■ QPSK 1/2 ■ QPSK 3/4 ■ 16-QAM 1/2 ■ 16-QAM 3/4 ■ 64-QAM 1/2 ■ 64-QAM 2/3 ■ 64-QAM 3/4 ■ 64-QAM 5/6

4.4.3.1.2 RF Tab

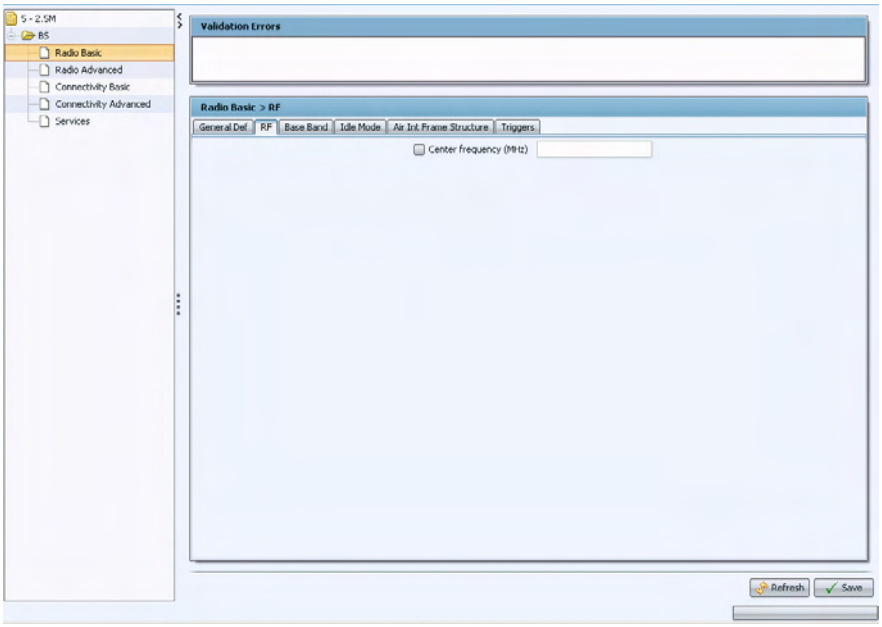


Figure 4-22: The BS Template -Radio Basic Page - RF Tab

The RF tab is not applicable for Add Rows to Tables templates.

The RF parameter is:

Parameter	Description
Center frequency	The center of the frequency band in which the BS will transmit, in MHz. The available values, in accordance with the bands supported by different ODUs, are: ■ 2022.5 to 2217.5 in steps of 0.125 ■ 2302.5 to 2397.5 in steps of 0.125 ■ 2487.5 to 2687.5 in steps of 0.125 ■ 3302.5 to 3397.5 in steps of 0.125 ■ 3402.5 to 3597.5 in steps of 0.125 ■ 3602.5 to 3797.5 in steps of 0.125 The available values for Center Frequencies indicated above are for a Bandwidth of 5 MHz. For a different bandwidth, the actually valid values are from f1+1/2BW to f2-1/2BW, where f1 is the lowest frequency of the ODU's radio band, f2 is the highest frequency of the ODU's band, and BW is the configured bandwidth. Note that ODU-2305-2360-000N-36-1x1-Y-0 (not supported in current release) includes two bands: 2305-2320, 2345-2360 MHz.

4.4.3.1.3 Base Band Tab

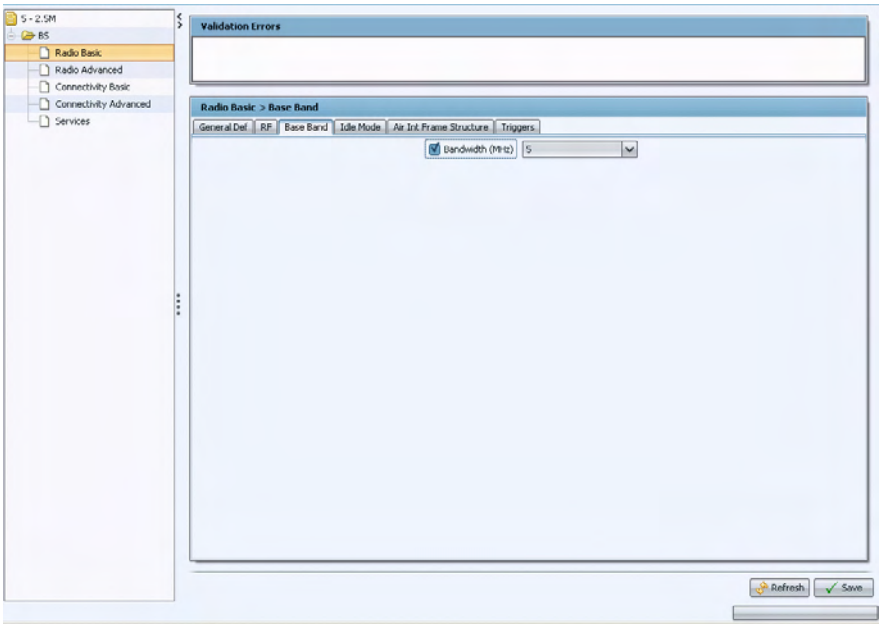


Figure 4-23: The BS Template -Radio Basic Page - Base Band Tab

The Base Band tab is not applicable for Add Rows to Tables templates.

The Base Band parameter is:

Parameter	Description
Bandwidth	The BS channel bandwidth (5 MHz, 7 MHz, 10MHz).

4.4.3.1.4 Idle Mode Tab

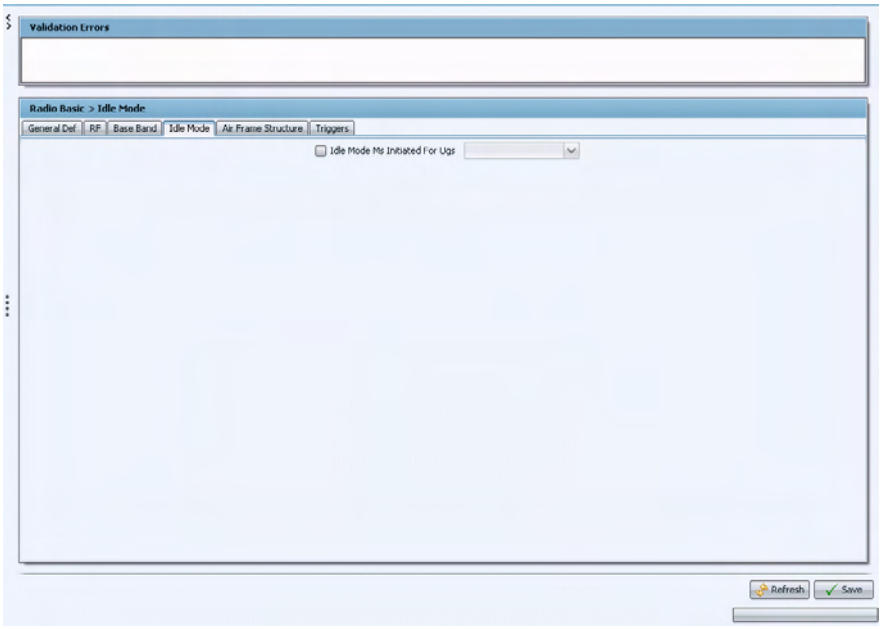


Figure 4-24: The BS Template -Radio Basic Page - Idle Mode Tab

The Idle Mode tab is not applicable for Add Rows to Tables templates.

The Idle Mode parameters are:

Parameter	Description
Idle Mode Ms Initiated For UGS	Defines whether BS allows MS to enter idle mode initiated by the MS, when there is a UGS connection available. If it is disabled - BS shall always reject MS initiation and request to enter idle mode. If it is enabled - BS would approve MS to enter the idle mode without being able to guarantee the required QoS for UGS.

4.4.3.1.5 Air Frame Structure Tab

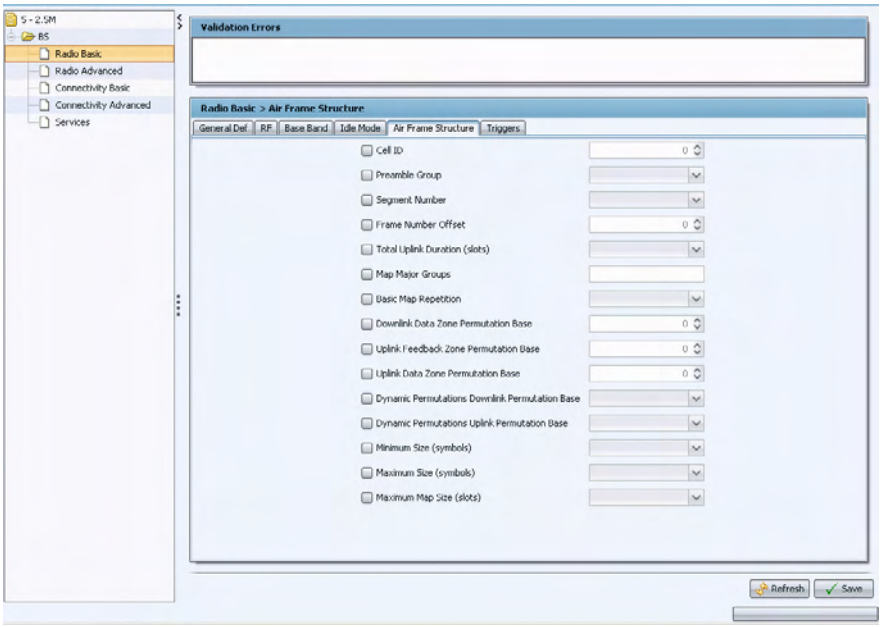


Figure 4-25: The BS Template -Radio Basic Page - Air Frame Structure Tab

The Air Frame Structure tab is not applicable for Add Rows to Tables templates.

The Air Frame Structure parameters are:

Parameter	Description
Cell ID	The Cell ID (IDCell) used for preamble selection. The range is from 0 to 31.
Preamble Group	The preamble group (1 or 2). A value of 2 is applicable only for the following combinations of Segment Number and Cell ID values: Segment Number=0, Cell ID=0, 3, 6, 9, 12, 15. Segment Number=1, Cell ID=1, 4, 7, 10, 13, 16. Segment Number=2, Cell ID=2, 5, 8, 11, 14, 17
Segment Number	The segment (BS) number in a three sector BS (0-2). This number influences the values available for Preamble Group selection (see above) preamble selection and the configuration of Map Major Groups (see below) used for the FDC transmission.
Frame Number Offset	Controls the offset applied between the internal frame count and the reported frame number. The range is from 0 to 15.

Parameter	Description
Total Uplink Duration	The total duration of the uplink in a frame, in slots (one slot equals 3 symbols). To avoid BS-BS interference, the ul-dl-allocation must be identical in all BSs in a geographical region. The range is 4-7 for bandwidth of 5 or 10MHz, 3-5 for bandwidth of 7MHz. After each change in the Bandwidth parameter the value must be configured to a proper value.
Map Major Groups	The major groups allocated to the BS for maps transmission, as indicated by the selection of the corresponding checkboxes. If BW=5 MHz, bits 1, 3 and 5 are not relevant (grayed out). If Segment Number is 0, then bit #0 should be set (checked). If Segment Number is 1, then bit #2 should be set (checked). If Segment Number is 2, then bit #4 should be set (checked).
Basic Map Repetition	The basic repetition used in the transmission of the maps using QPSK 1/2. The available options are 1, 2, 4 and 6. (1 means no repetitions).
Downlink Data Zone Permutation Base	The permutation base used in the downlink data zone. The valid range is from 0 to 31.
Uplink Feedback Zone Permutation Base	The permutation base used in the uplink feedback zone. The valid range is from 0 to 69.
Uplink Data Zone Permutation Base	The permutation base used in the uplink data zone. The valid range is from 0 to 69.
Minimum Size	The initial size (in symbols) of the first zone. When reuse 3 is used within first zone, this parameter should be equal across all BSs within deployment. The available options are 2, 4,....34 (2xN where N=1-17) or No Limitation.
Maximum Size	Maximum size (in symbols) for first zone. Used mainly for performance control capability within frame. The available options are 2, 4,....34 (2xN where N=1-17) or No Limitation. Maximum Size cannot be lower than Minimum Size.
Maximum Map Size	Limits the maximum size of maps (in slots). The available options are 10, 20, ...300 (10xN where N=1-30) or No Limitation.
Dynamic Permutations Downlink Permutation Base	Indicates whether the same downlink permutation base is used over all frames (Static or Dynamic).
Dynamic Permutations Uplink Permutation Base	Indicates whether the same uplink permutation base is used over all frames (Static or Dynamic).

4.4.3.1.6 Triggers Tab

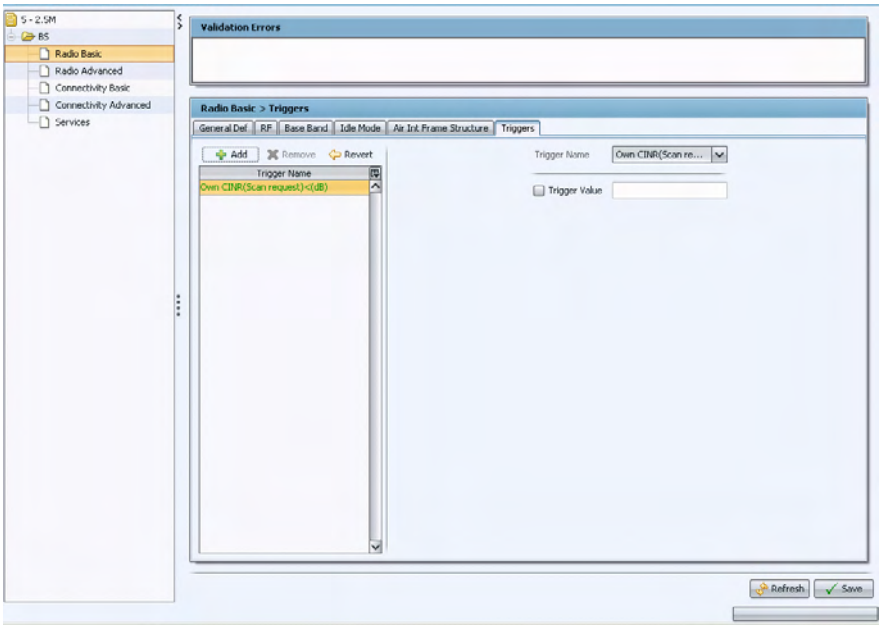


Figure 4-26: The BS Template -Radio Basic Page - Triggers Tab

The Triggers tab is not applicable for Update Multiple Rows templates.

Each row in the table includes a trigger name.

To add a row to the table click on the Add button above the table. A row configuration window will open enabling you to select a Trigger Name from the drop-down list.

The Trigger Names must be selected taking into account the relevant existing Trigger Names in the target objects that will participate in the Multiple Configuration task using the template. In an Add Rows to Tables template, a Trigger Name that already exist in the managed object will be rejected. In an Update Parameters template, a Trigger Name that does not exist in the managed object will be rejected.

After clicking OK in the row configuration window a new row with the selected Trigger Name is added to the table (colored green), and the parameters editor for the row is displayed on the right side, allowing you to configure parameters for the new object. After completing configuration of the new row, click on the Save button at the bottom of the page. The color of the new row will change to black.

As long as the row is colored green (not saved yet), you can remove it by clicking on the Revert button above the table.

Select a previously saved row (colored black) to edit its parameters.

To delete a previously saved row, select it and click on the Remove button above the table.

The Triggers Row Editor includes the following parameters:

Parameter	Description
Trigger Name	The Trigger Name that includes the Trigger Type and Action. For details refer to the table below.
Trigger Value	The threshold value for the trigger. For CINR triggers the range is -64 to 63.5 in steps of 0.5 (dB) For RSSI triggers the range is -103.75 to -40 in steps of 0.25 (dBm) For Distance triggers the range (in meters) is 0-3400 in steps of 50 if BS BW is 10 MHz, 0-6800 in steps of 50 if BS BW is 5 MHz, 0-4800 in steps of 50 if BS BW is 7 MHz.

Trigger Type	Possible Actions	Trigger Condition
Own CINR <	Scan Request Handover Request	The CINR at the Serving BS is below the Trigger threshold (in dB)
Neighnor CINR >	Handover Request	The CINR at the Neighbour BS is above the Trigger threshold (in dB)
Neighbor CINR-Own CINR >	Handover Request	The CINR at the Neighbour BS minus the CINR at the Serving BS is above the Trigger threshold (in dB)
Own RSSI <	Scan Request Handover Request	The RSSI at the Serving BS is below the Trigger thresholdd (in dBm)
Neighbor RSSI >	Handover Request	The RSSI at the Neighbour BS is above the Trigger threshold (in dBm)
Neighbor RSSI-Own RSSI >	Handover Request	The RSSI at the Neighbour BS minus the RSSI at the Serving BS is above the Trigger threshold (in dBm)
Distance	Scan Request Handover Request	The Serving BS distance from the MS (calculated by measuring the round trip delay) is above the Trigger threshold (in meter)

4.4.3.2 Radio Advanced Page

The Radio Advanced page is not applicable for Add Rows to Tables templates.

The Radio Advanced page comprises the following tabs:

- "Ranging Tab
- "Feedback Allocations Tab
- "Neighbor Advertisement Tab
- "Power Control Tab
- "Management Tab
- "Handover Negotiation at TBS Tab
- "Trigger Setup Tab
- "QoS Tab

4.4.3.2.1 Ranging Tab

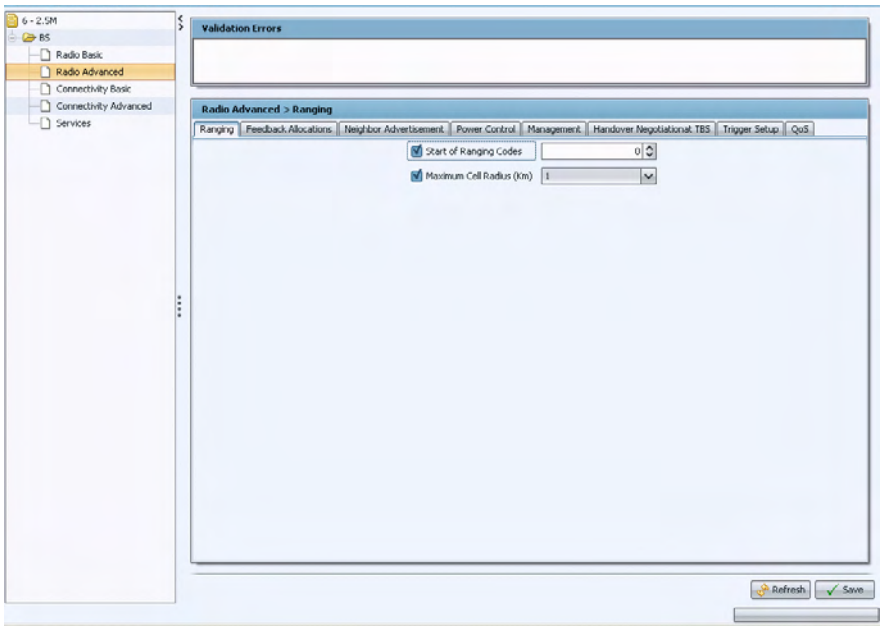


Figure 4-27: The BS Template -Radio Advanced Page - Ranging Tab

The Ranging parameters are:

Parameter	Description
Start of Ranging Codes	The starting number of the group of codes used for the uplink. The avilable options are 0, 64, 128, 192.
Maximum Cell Radius	The maximum cell radius (in km). The available values are 1, 2, 4, 8, 15, 23. 30.

4.4.3.2.2 Feedback Allocations Tab

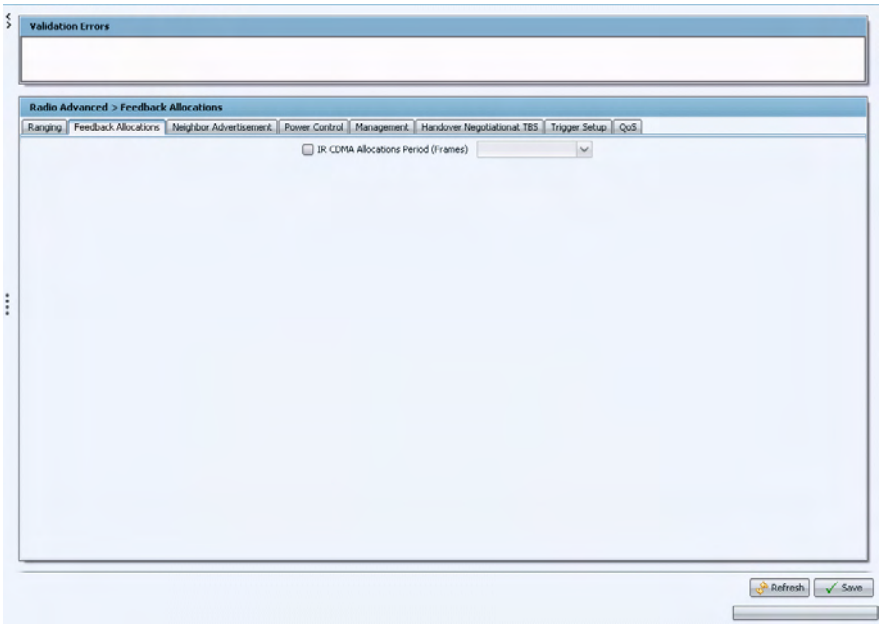


Figure 4-28: The BS Template -Radio Advanced Page - Feedback Allocations Tab

The Feedback Allocations parameter is:

Parameter	Description
IR CDMA Allocation Period	The period of IR CDMA allocations, in frames. The available options are 1, 2, 4, 6, 8, 10.

4.4.3.2.3 Neighbor Advertisement Tab

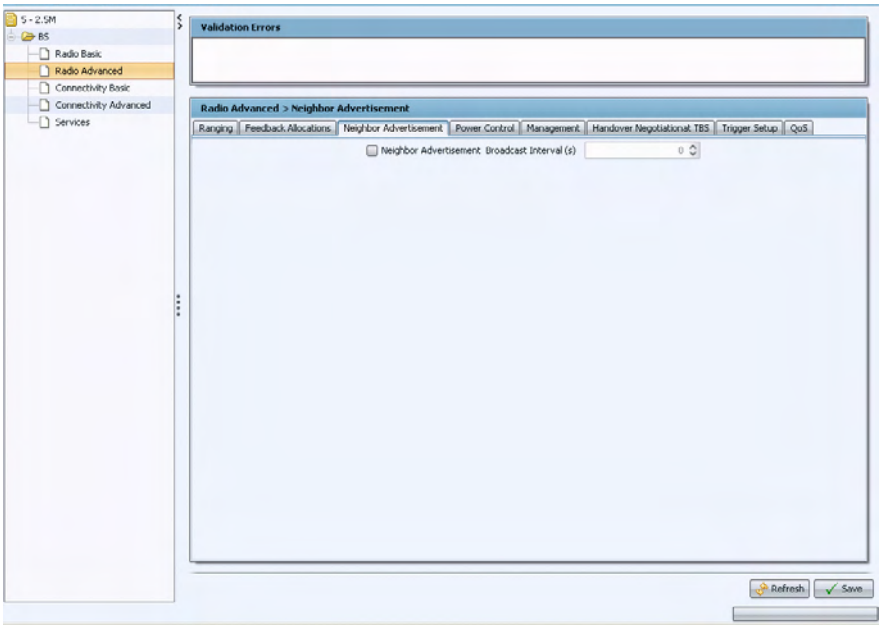


Figure 4-29: The BS Template -Radio Advanced Page - Neighbor Advertisement Tab

The Neighbor Advertisement parameter is:

Parameter	Description
Neighbor Advertisement Broadcast Interval	The periodic NBRADV transmission interval, in seconds. The range is from 0 to 100 in steps of 0.1.

4.4.3.2.4 Power Control Tab

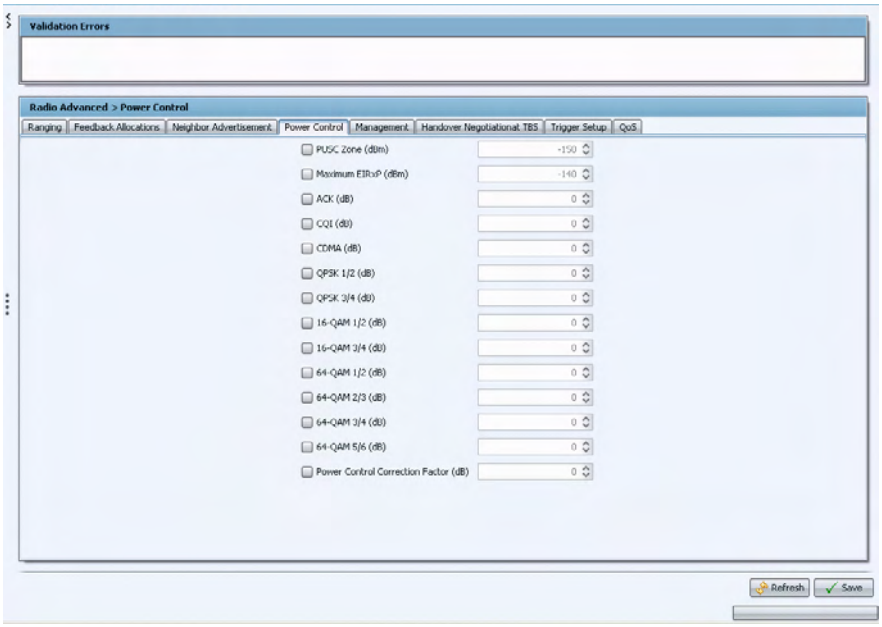


Figure 4-30: The BS Template -Radio Advanced Page - Power Control Tab

The Power Control parameters are:

Parameter	Description
PUSC Zone	The target noise and interference level for the PUSC zone, in dBm. The range is from -130 to -110 in steps of 0.5 (dBm).
ACK	The C/N in dB required for sending ACK, reported to the MS for power control purposes. The range is from -20 to 50 (dB).
CQI	The C/N in dB required for sending CQI, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for ACK - 8 to Required C/N Level for ACK + 7 (see ACK parameter above.
CDMA	The C/N in dB required for transmitting CDMA, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for CQI - 8 to Required C/N Level for CQI + 7 (see CQI parameter above.

Parameter	Description
QPSK 1/2	The C/N in dB required for sending QPSK 1/2, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for CDMA - 16 to Required C/N Level for CDMA + 14 (see CDMA parameter above.
QPSK 3/4	The C/N in dB required for sending QPSK 3/4, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for QPSK 1/2 - 16 to Required C/N Level for QPSK 1/2 + 14 (see QPSK 1/2 parameter above.
16-QAM 1/2	The C/N in dB required for transmitting 16-QAM 1/2, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for QPSK 3/4 - 8 to Required C/N Level for QPSK 3/4 + 7 (see QPSK 3/4 parameter above.
16-QAM 3/4	The C/N in dB required for sending 16-QAM 3/4, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for 16-QAM 1/2 - 16 to Required C/N Level for 16-QAM 1/2 + 14 (see 16-QAM 1/2 parameter above.
64-QAM 1/2	The C/N in dB required for sending 64-QAM 1/2, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for 16-QAM 3/4 - 16 to Required C/N Level for 16-QAM 3/4 + 14 (see 16-QAM 3/4 parameter above.
64-QAM 2/3	The C/N in dB required for sending 64-QAM 2/3, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for 64-QAM 1/2 - 8 to Required C/N Level for 64-QAM 1/2 + 7 (see 64-QAM 1/2 parameter above.
64-QAM 3/4	The C/N in dB required for sending 64-QAM 2/3, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for 64-QAM 2/3 - 8 to Required C/N Level for 64-QAM 2/3 + 7 (see 64-QAM 2/3 parameter above.

Parameter	Description
64-QAM 5/6	The C/N in dB required for transmitting 64-QAM 5/6, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for 64-QAM 3/4 - 8 to Required C/N Level for 64-QAM 3/4 + 7 (see 64-QAM 3/4 parameter above.
Power Control Correction Factor	Correction (in dB) of max allowed UL SINR given DL SINR measurement. The higher the correction factor is, the higher is the allowed UL Tx Power. The range is from -20 to 30 in steps of 0.1 (dBm).

4.4.3.2.5 Management Tab

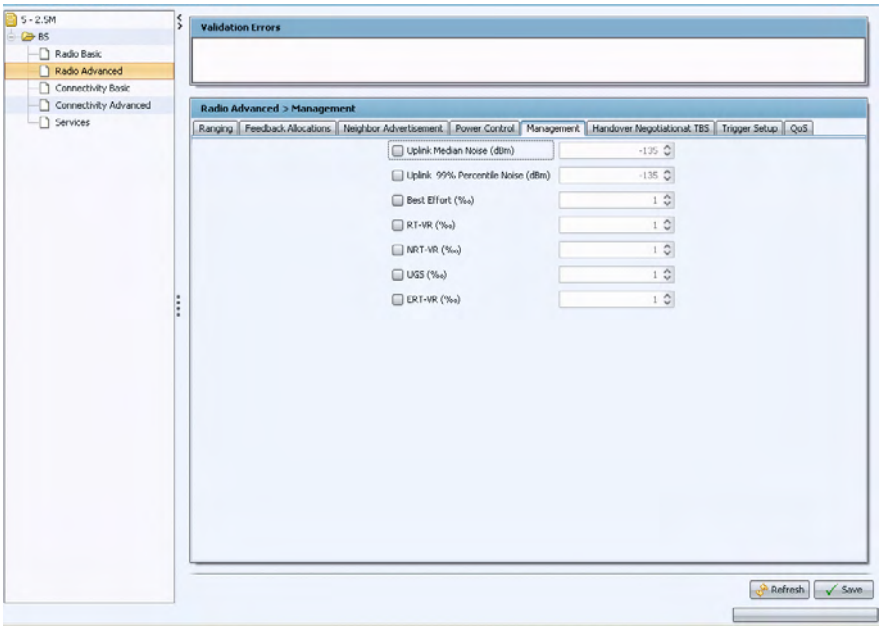


Figure 4-31: The BS Template -Radio Advanced Page - Management Tab

The Management parameters are:

Parameter	Description
Uplink Median Noise	The uplink median noise level represents the median value of the noise floor histogram.If the measured uplink median noise level exceeds the value calculated as the target noise and interference level for the PUSC Zone plus the value of the Uplink Median Noise parameter, .an excessive uplink median noise alarm will be generated. The range is from -135 to -100 (dBm).

Parameter	Description
Uplink 99% Percentile Noise	The uplink 99% noise level represents the 99% value of the noise floor histogram.If the uplink 99% noise level exceeds the value calculated as the target noise and interference level for the PUSC Zone plus the value of the Uplink 99% Percentile Noise parameter, an excessive uplink 99% percentile noise alarm will be generated. The range is from -135 to -100 (dBm).
Best Effort	The threshold for excessive DL dropped packets ratio (in promils), of DL packets in all Best Effort services, which when exceeded triggers a Best Effort service alarm. The range is from 1 to 1000 (promil).
RT-VR	The threshold for excessive DL dropped packets ratio (in promils), of DL packets in all RT-VR services, which when exceeded triggers an RT-VR service alarm. The range is from 1 to 1000 (promil).
NRT-VR	The threshold for excessive DL dropped packets ratio (in promils), of DL packets in all NRT-VR services, which when exceeded triggers an NRT-VR service alarm. The range is from 1 to 1000 (promil).
UGS	The threshold for excessive DL dropped packets ratio (in promils), of DL packets in all UGS services, which when exceeded triggers a UGS service alarm. The range is from 1 to 1000 (promil).
ERT-VR	The threshold for excessive DL dropped packets ratio (in promils), of DL packets in all ERT-VR services, which when exceeded triggers an ERT-VR service alarm. The range is from 1 to 1000 (promil).

4.4.3.2.6 Handover Negotiation at TBS Tab

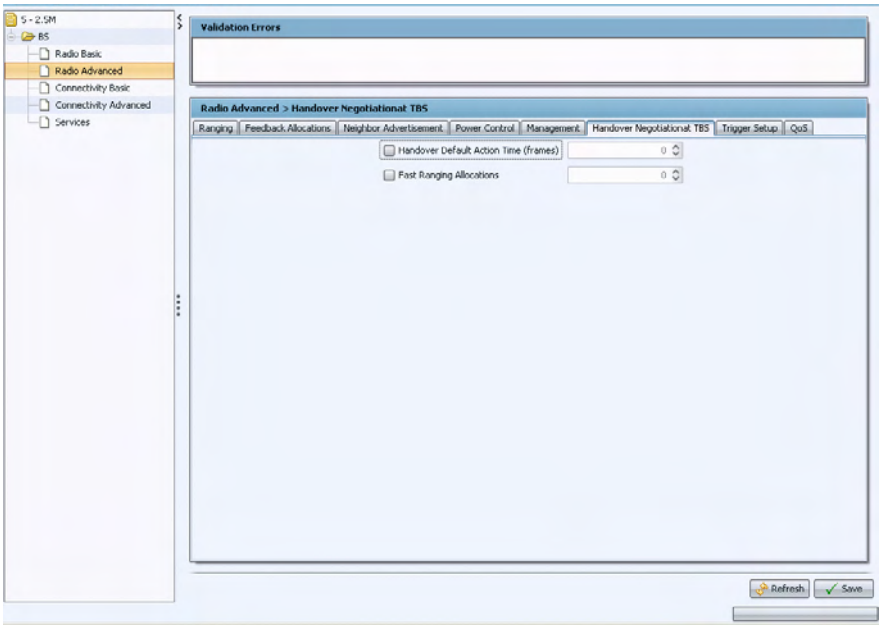


Figure 4-32: The BS Template -Radio Advanced Page - Handover Negotiation at TBS Tab

The Handover Negotiation at TBS parameters are:

Parameter	Description
Handover Default Action Time	The number of frames until allocation of non-contention based opportunity at a target BS. The range is from 0 to 255 (frames).
Fast Ranging Allocations	The number of frames until allocation of non-contention based opportunity at a target BS. The range is from 0 to 255 (frames).

4.4.3.2.7 Trigger Setup Tab

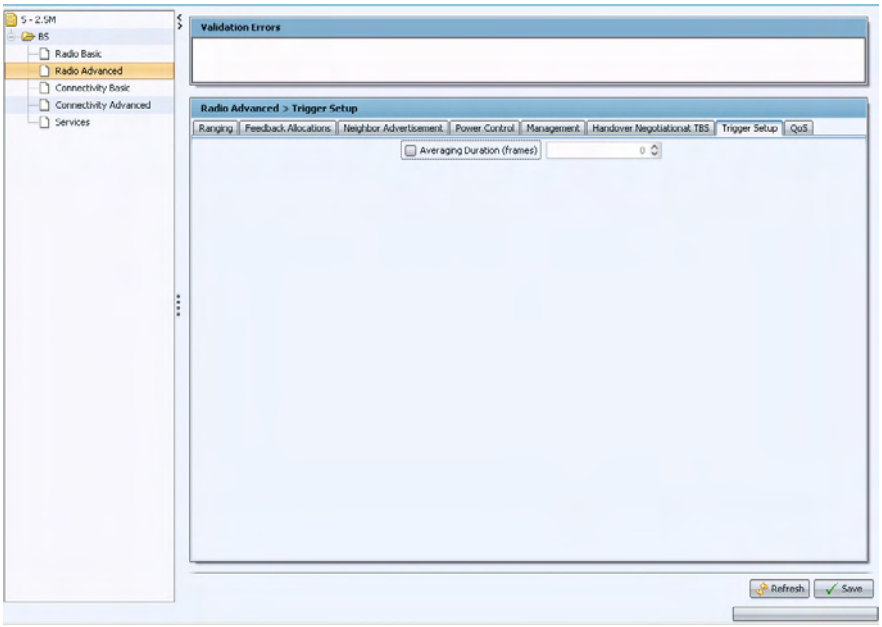


Figure 4-33: The BS Template -Radio Advanced Page - Trigger Setup Tab

The Trigger Setup parameter is:

Parameter	Description
Averaging Duration	The default RSSI average duration for triggers, in frames The range is from 1 to 255 frames.

4.4.3.2.8 QoS Tab

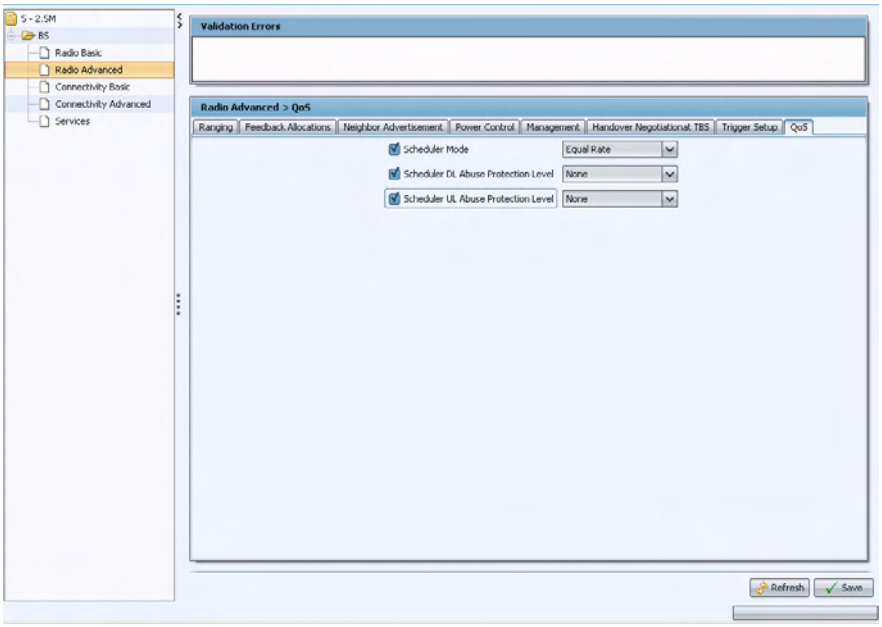


Figure 4-34: The BS Template -Radio Advanced Page - QoS Tab

The QoS parameters are:

Parameter	Description
Scheduler Mode	The basis for allocating excess bandwidth among relevant users: ■ Equal Rate: Throughput Fairness ■ Equal Time: Resource Fairness The selected mode is applicable for both uplink and downlink schedulers.
Scheduler DL Abuse Protection Level	Applicable only if the selected Scheduler Mode is Equal Rate. None: No Protection Low: Limit the DL resources allocated to MSs with very low DL transmission Rate. Medium: Limit the DL resources allocated to MSs with low and very low DL transmission Rate.

Parameter	Description
Scheduler UL Abuse Protection Level	Applicable only if the selected Scheduler Mode is Equal Rate. None: No Protection Low: Limit the UL resources allocated to MSs with very low UL transmission Rate. Medium: Limit the UL resources allocated to MSs with low and very low UL transmission Rate.

4.4.3.3 Connectivity Basic Page

The Connectivity Basic page is not applicable for Add Rows to Tables templates.

The Connectivity Basic page comprises the following tabs:

- "Bearer Tab
- "Authentication Tab

4.4.3.3.1 Bearer Tab

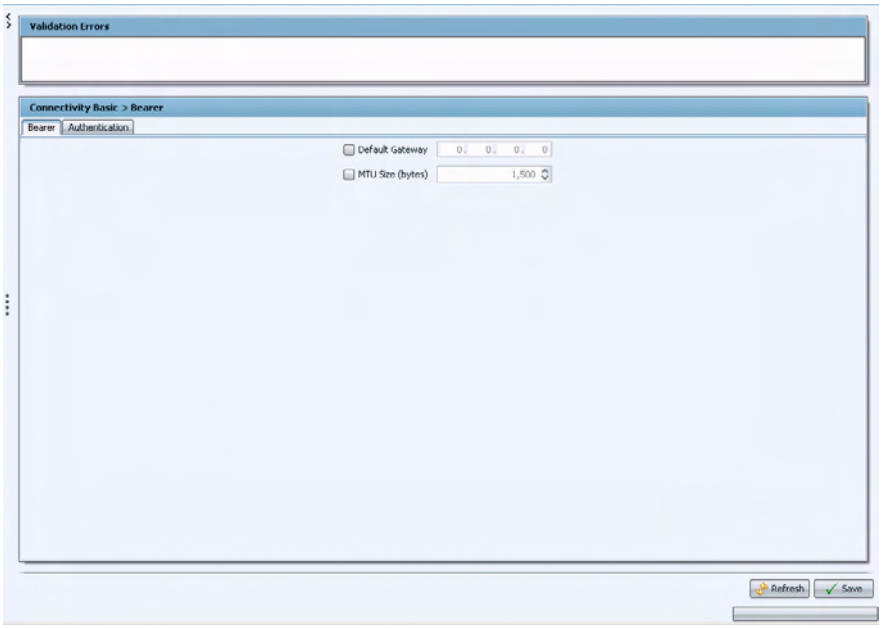


Figure 4-35: The BS Template -Connectivity Basic Page - Bearer Tab

The Bearer parameters are:

Parameter	Description
Default Gateway	The IP address of the default gateway of the bearer interface of the BS. Must be in the same subnet with the BS bearer IP Address.
MTU Size	The MTU size (in bytes) of the bearer interface of the BS. The range is 1500-9000.

4.4.3.3.2 Authentication Tab

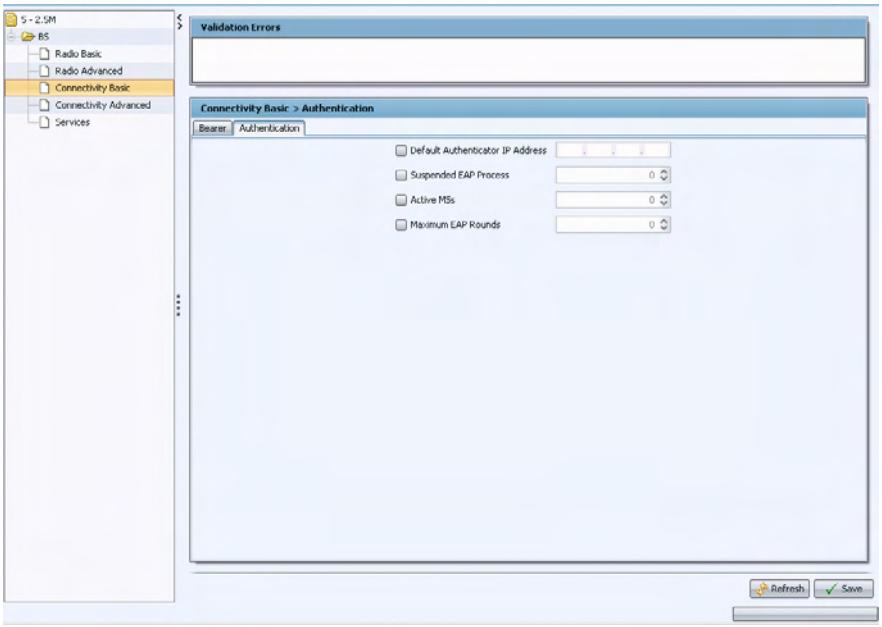


Figure 4-36: The BS Template -Connectivity Basic Page - Authentication Tab

The Authentication parameters are:

Parameter	Description
Default Authenticator IP Address	The IP address of the default authenticator ASN GW. In Distributed ASN-GW Topology this is typically the IP address of the NPU's Bearer interface.
Suspended EAP Process	Suspended EAP authentification process threshold. It is used to set an alarm. The range is 0-10000.
Active MSs	The threshold for the number of MSs in active operation state (not Idle) served by the BS. Exceeding this threshold sets the alarm "Excessive MS number". The range is 0-1024. When set to 0, the alarm is disabled.

Parameter	Description
Maximum EAP Rounds	The threshold for the number of EAP rounds in one direction in the same EAP session. When this threshold is exceeded, alarm is set. This threshold may be used to protect the system from hazard EAP sessions with extreme number of messaging round trips. The range is 0-100. When set to 0, the alarm is disabled.

4.4.3.4 Connectivity Advanced Page

The Connectivity Basic page comprises the following tabs:

- "Control Traffic QoS Rules
- "Bearer Traffic QoS Rules Tab
- "Keep Alive Tab

4.4.3.4.1 Control Traffic QoS Rules

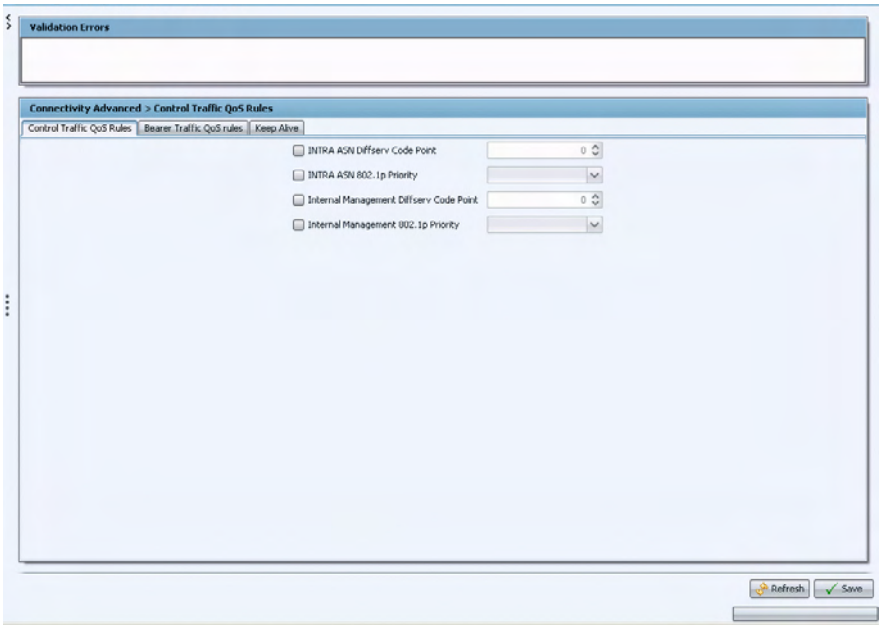


Figure 4-37: The BS Template -Connectivity Advanced Page - Control Traffic QoS Rules Tab

The Control Traffic QoS Rules tab is not applicable for Add Rows to Tables templates.

The Control Traffic QoS Rules parameters are:

Parameter	Description
Intra ASN Diffserv Code Point	DSCP priority value to be used for marking of intra-ASN (R8/R6) traffic. The range is 0-63.
Intra ASN 802.1p Priority	802.1p priority value to be used for marking of intra-ASN (R8/R6) traffic. The range is 0-7.
Internal Management Diffserv Code Point	DSCP priority value to be used for marking of intra-ASN (R8/R6) traffic. The range is 0-63.
Internal Management 802.1p Priority	802.1p priority value to be used for marking of intra-ASN (R8/R6) traffic. The range is 0-7.

4.4.3.4.2 Bearer Traffic QoS Rules Tab

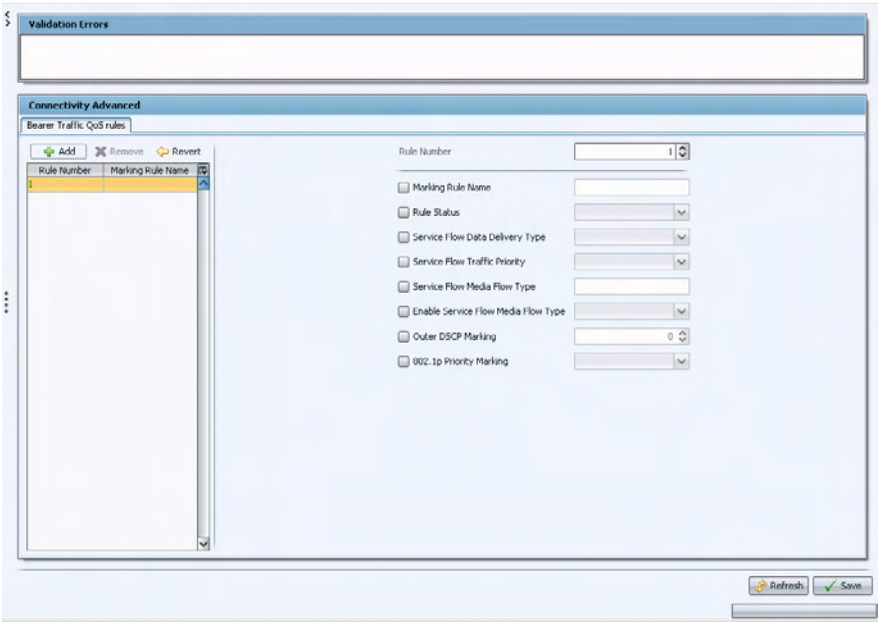


Figure 4-38: The BS Template - Connectivity Advanced Page - Bearer Traffic QoS Rules Tab (Add Rows to Tables Template)

The Bearer Traffic QoS Rules table includes the following parameters for each row:

Parameter	Description
Rule Number	The index number of the Rule (1-16383). Not applicable for Update Multiple Rows templates.
Marking Rule Name	Applicable only for Add Rows to Tables templates. The name (alias) of the Marking Rule. A string of 1 to 30 characters. Must be unique in the device.

The Bearer Traffic QoS Rules Row Editor includes the following parameters:

Parameter	Description
Rule Number	The index number of the Rule (1-16383). Not applicable for Update Multiple Rows templates.
Marking Rule Name	Applicable only for Add Rows to Tables templates. The name (alias) of the Marking Rule. A string of 1 to 30 characters. Must be unique in the device.
Rule Status	The status of the rule (Enable or Disable).
Service Flow Data Delivery Type	The Service Flow Type for data delivery services: uGS, BE, eRTVR, or ANY.
Service Flow Traffic Priority	The priority of Service Flow traffic. 0-7 or ANY.
Service Flow Media Flow Type	The Service Flow Media Flow Type, as defined in ASN-GW or AAA server.
Enable Service Flow Media Flow Type	Indicates whether the condition for Service Flow Media Flow Type is enabled or disabled. If enabled, the Service Flow Media Flow Type will be considered. when looking for a match.
Outer DSCP Marking	The DSCP value to be used for marking the outer IP header (IP/GRE). The range is 0-63.
802.1p Priority Marking	The 802.1p priority to be used for marking traffic. The range is 0-7.

4.4.3.4.3 Keep Alive Tab

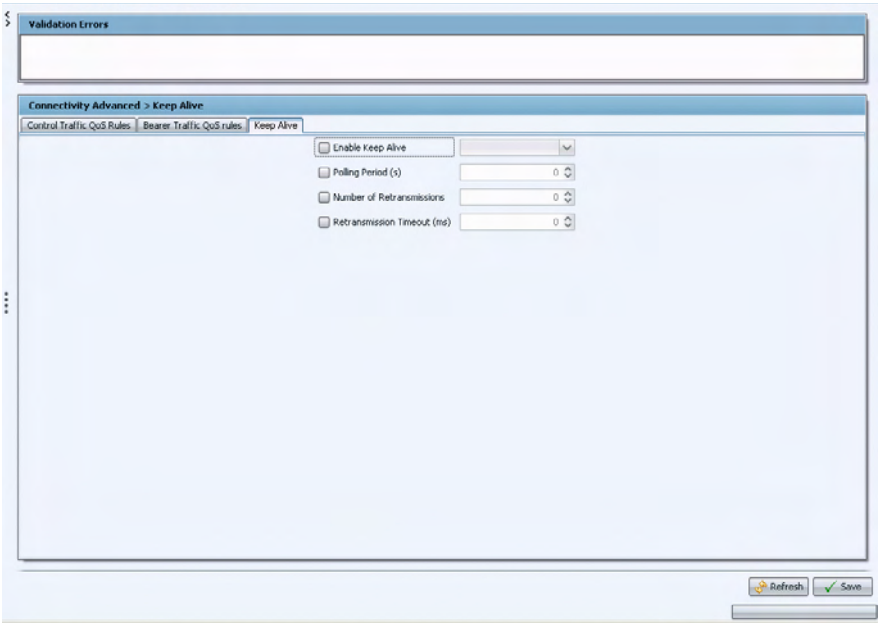


Figure 4-39: The BS Template - Connectivity Advanced Page - Keep alive Tab

The Keep Alive tab is not applicable for Add Rows to Tables templates.

The Keep Alive tab includes the following parameters:

Parameter	Description
Enable Keep Alive	This parameter enable/disable the BS keep-alive mechanism. The following parameters are applicable only if Keep Alive is enabled.
Polling Period	The period In seconds between polling sessions. The range is from 10 to 1000 seconds. Polling Period x 1000 (value in milliseconds) cannot be lower than Retransmission Timeout x (Number of Retransmissions+1)
Number of Retransmissions	Maximum number of retries if Retransmission Timeout has expired without getting a response. The range is from 1 to 10.
Retransmission Timeout	Time in milliseconds to wait for a response before initiating another polling attempt or reaching a decision that the polled entity has failed (if the maximum number of retries set by Number of Retransmissions has been reached). The range is from 5000 to 10000 milliseconds (5 to 10 second).

4.4.3.5 Services Page

The Services page comprises the following tabs:

- “Definitions Tab
- “Mapping Tab

4.4.3.5.1 Definitions Tab

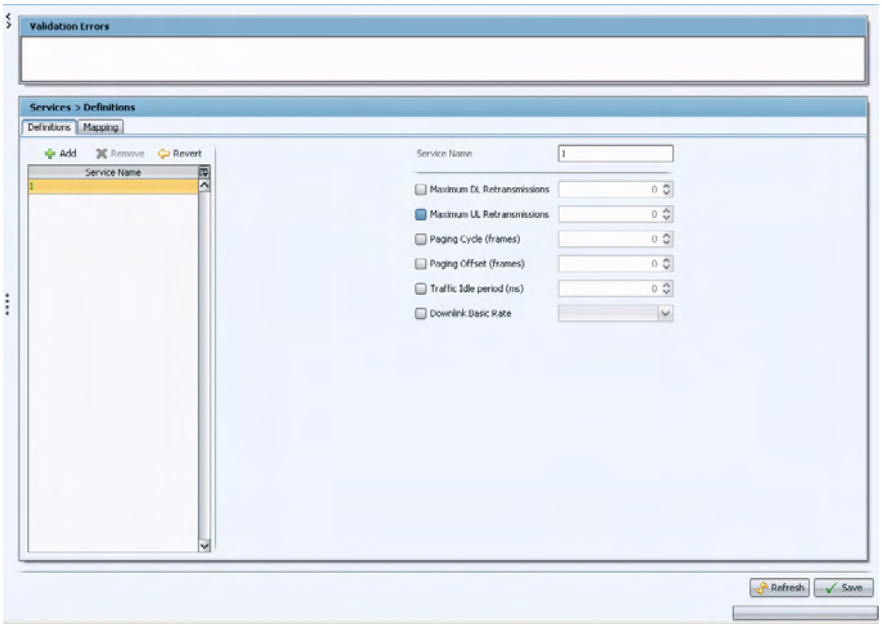


Figure 4-40: The BS Template - Services Page - Definitions Tab

The Definitions table includes the following parameter for each row:

Parameter	Description
Service Name	The name of the service. 1 to 32 characters. Not applicable for Update Multiple Rows templates.

The Definitions Row Editor includes the following parameters:

Parameter	Description
Service Name	The name of the service. 1 to 32 characters. Not applicable for Update Multiple Rows templates.
Maximum DL Retransmissions	The maximal number of downlink retransmissions of an HARQ sub-burst for this service. The range is 0-15.
Maximum UL Retransmissions	The maximal number of uplink retransmissions of an HARQ sub-burst for this service. The range is 0-15.
Paging Cycle	Per-Service type policy parameter in PA used to determine Paging Cycle value (in frames) for the MS during IM Entry and MS Paging. The range is from 6 to 1000.

Parameter	Description
Paging Offset	Per-Service type parameter in PA used to determine Paging Offset value (in frames) for the MS during IM Entry and Paging. Paging Offset value shall not exceed the chosen Paging Cycle value. The range is from 0 to 1000. The default is 0.
Traffic Idle Period	Traffic Idle period in milliseconds - per Service type. The range is from 50 to 60000 in steps of 50.
Downlink Basic Link	The downlink basic rate. ■ QPSK 1/2 Repetition 6 ■ QPSK 1/2 Repetition 4 ■ QPSK 1/2 Repetition 2 ■ QPSK 1/2 ■ QPSK 3/4 ■ 16-QAM 1/2 ■ 16-QAM 3/4 ■ 64-QAM 1/2 ■ 64-QAM 2/3 ■ 64-QAM 3/4 ■ 64-QAM 5/6

4.4.3.5.2 Mapping Tab

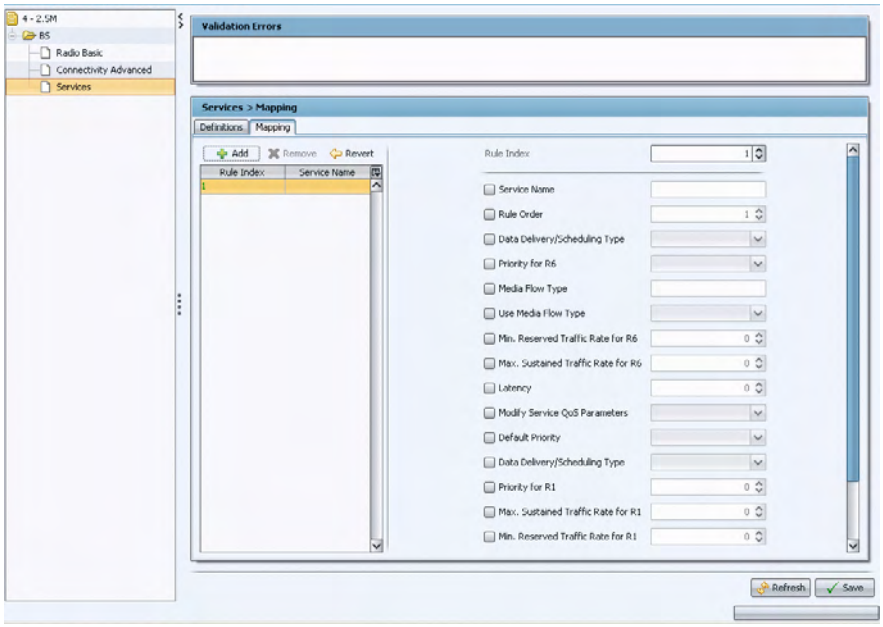


Figure 4-41: The BS Template - Services Page - Mapping Tab (Add Rows to Tables Template)

The Mapping table includes the following parameter for each row:

Parameter	Description
Rule Index	The index number of the Rule (1-255). Not applicable for Update Multiple Rows templates
Service Name	The name of the service. Must be a Service Name that already exists in the target managed objects.Not applicable for Update Multiple Rows templates

The Mapping Row Editor includes the following parameters:

Parameter	Description
Rule Index	The index number of the Rule (1-255). Not applicable for Update Multiple Rows templates
Service Name	The name of the service. Must be a Service Name that already exists in the target managed objects.Not applicable for Update Multiple Rows templates
Rule Order	Defines the order in which the rows of the table are checked to find a match. The value of this parameter must be different for each row instance. The range is from 1 to 255..

Parameter	Description
Data Delivery/Scheduling Type for R6	An R6 parameter entry in the lookup table specifying the data delivery type (service type): UGS, RT-VR, NRT-VR, BE, ERT-VR/ertPS, or ANY.
Priority for R6	An R6 parameter entry in the lookup table specifying the traffic priority: 0-7 or ANY.
Use Media Flow Type	If enabled (checked), the service lookup function will try to match the Service Flow Media Flow Type with the Media Flow Type entry (see below). If disabled the service lookup function will ignore the Media Flow Type.
Media Flow Type	An R6 parameter entry in the lookup table that is relevant only if the Use Media Flow Type option is enabled. A string of up to 32 characters.
Use Min. Reserved Traffic Rate	If enabled (checked), the service lookup function will try to match the Service Flow Min. Reserved Traffic Rate with the Min Reserved Traffic Rate entry (see below). If disabled the service lookup function will ignore the Min. Reserved Traffic Rate.
Min. Reserved Traffic Rate for R6	An internal R6 profile parameter specifying the minimum reserved traffic rate in Kbps. Applicable only for relevant data delivery type (UGS, NRTVR, RTVR, ERTVR). For NRTVER, RTVR and ERTVR-cannot be higher than Max. Sustained Traffic Rate. The range is 0-40000. A value of -1 indicates that the parameter is not used.
Use Max. Sustained Traffic Rate	If enabled (checked), the service lookup function will try to match the Service Flow Max. Sustained Traffic Rate with the Max. Sustained Traffic Rate entry (see below). If disabled the service lookup function will ignore the Max. Sustained Traffic Rate.
Max. Sustained Traffic Rate for R6	An internal R6 profile parameter specifying the maximum sustained traffic rate in Kbps. Applicable only for relevant data delivery type (NRTVR, RTVR, BE, ERTVR, ANY). The range is 0-40000. A value of -1 indicates that the parameter is not used.
Use Latency	If enabled (checked), the service lookup function will try to match the Service Flow Latency with the Latency entry (see below). If disabled the service lookup function will ignore the Latency.
Latency for R6	An R6 parameter entry in the lookup table specifying the maximum tolerated latency in milliseconds. Applicable only for relevant data delivery type (UGS, RTVR, ERTVR). The range is 0-5000. A value of -1 indicates that the parameter is not used.

Parameter	Description
Modify Service QoS Parameters	Indicates whether to modify service QoS parameters using internal R1 profile parameters. If disabled, only the Default Priority parameter is applicable. All other parameters below are not applicable. If enabled, Default Priority is not applicable. Availability of other parameters depends on selected option for Data Delivery/Scheduling Type.
Default Priority	The traffic priority to be used when priority is missing in the R6 request. Relevant only if Modify Service QoS Parameters is not enabled. The range is 0-7.
Priority for R1	An internal R1 profile parameter specifying the traffic priority. Relevant only if Modify Service QoS Parameters is enabled and Data Delivery/Scheduling Type is other than UGS. The range is 0-7.
Data Delivery/Scheduling Type for R1	An internal R1 profile parameter, specifying the type of data delivery (service type). Relevant only if Modify Service QoS Parameters is enabled. Available types are UGS, RT-VR, NRT-VR, BE, ERT-VR.
Min. Reserved Traffic Rate for R1	An internal R1 profile parameter specifying the minimum reserved traffic rate in Kbps. The range is 0-40000. Relevant only if Modify Service QoS Parameters is enabled and Data Delivery/Scheduling Type is other than BE.
Max. Sustained Traffic Rate for R1	An internal R1 profile parameter specifying the maximum sustained traffic rate in Kbps. The range is 0-40000. Relevant only if Modify Service QoS Parameters is enabled and Data Delivery/Scheduling Type is other than UGS.
Latency for R1	An internal R1 profile parameter specifying maximum latency in milliseconds. The range is 0-5000. Relevant only if Modify Service QoS Parameters is enabled and the data delivery type is UGS, RT-VR, or ERT-VR.
Jitter	An internal R1 profile parameter specifying maximum tolerated jitter in milliseconds. The range is 0-5000. Relevant only if Modify Service QoS Parameters is enabled and the data delivery type is UGS or ERT-VR.

Parameter	Description
Grant Interval	An internal R1 profile parameter specifying the grant interval in milliseconds. The range is 0-5000. Relevant only if modify-serviceqos is TRUE and the data delivery type is UGS or ERT-VR.

4.4.4 Management Template

The Management Template comprises the following pages:

- "SNMP Managers Page
- "Performance Page
- "Logging Page

4.4.4.1 SNMP Managers Page

The SNMP Managers page comprises the following tabs:

- "SNMP Managers Tab
- "SNMP Trap Managers Tab

4.4.4.1.1 SNMP Managers Tab

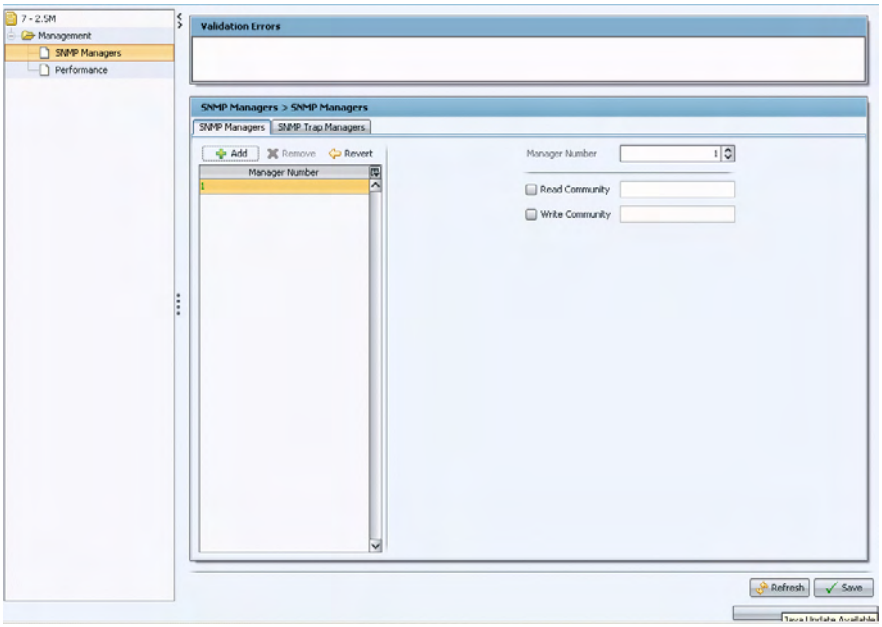


Figure 4-42: The Management Template - SNMP Managers Page - SNMP Managers Tab (Add Rows to Tables Template)

The SNMP Managers table includes the following parameter for each row:

Parameter	Description
Manager Number	The index number of the SNMP Manager (1-5). Not applicable for Update Multiple Rows templates.

The SNMP Manager Row Editor includes the following parameters:

Parameter	Description
Manager Number	The index number of the SNMP Manager (1-5). Not applicable for Update Multiple Rows templates.
Community Read Only	The SNMP Read Community string allowing execution of SNMP Get operations. A string of up to 10 printable characters, case-sensitive.
Community Read & Write	The SNMP Write Community string allowing execution of SNMP Set and Get operations. A string of up to 10 printable characters, case-sensitive.

NOTE

The Communities are mandatory and both must be defined (other than null).
Duplication of Communities pairs is not allowed (each pair must be unique).

4.4.4.1.2 SNMP Trap Managers Tab

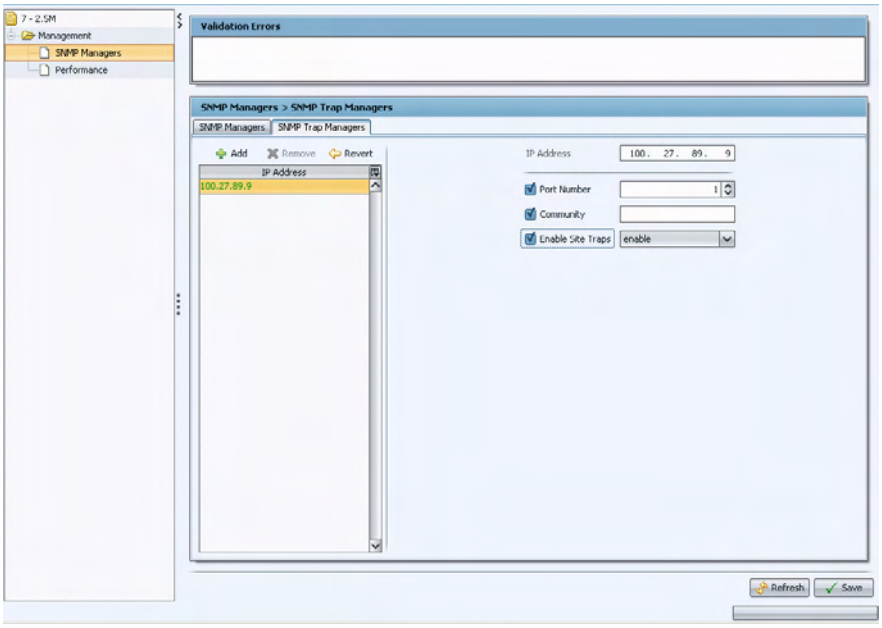


Figure 4-43: The Management Template - SNMP Managers Page - SNMP Trap Managers Tab (Add Rows to Tables Template)

The SNMP Trap Managers table includes the following parameter for each row:

Parameter	Description
IP Address	The IP address of the SNMP Trap Manager (1-5). Not applicable for Update Multiple Rows templates.

The SNMP Trap Manager Row Editor includes the following parameters:

Parameter	Description
IP Address	The IP address of the SNMP Trap Manager (1-5). Not applicable for Update Multiple Rows templates.
Port Number	The port number on which the Trap Manager will listen for messages from the Agent. The range is from 1 to 65535. The port on which the management system listens for traps is 162.

Parameter	Description
Community	The name of the SNMP Read Community used by the Trap Manager. Traps are sent toward those Managers for which this parameter is configured. A string of up to 10 printable characters, case-sensitive.
Enable Site Traps	Indicates whether the sending of traps to the management station is enabled or disabled.

4.4.4.2 Performance Page

The Performance page comprises the NPU Counters and AU Counters tabs.

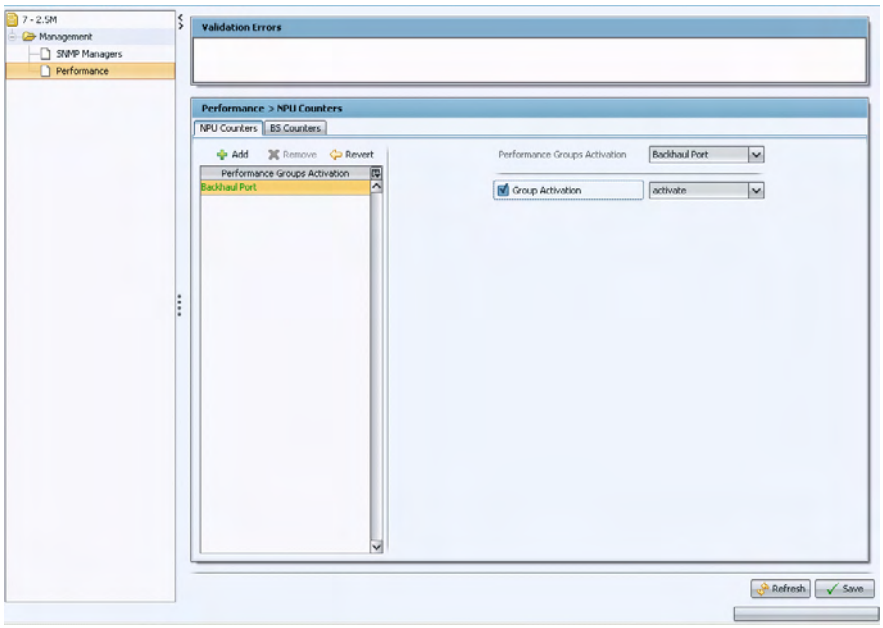


Figure 4-44: The Management Template - Performance Page - NPU Counters Tab (Add Rows to Tables Template)

The NPU Counters and AU Counters tables includes the following parameter for each row:

Parameter	Description
Performance Group Activation	The Counters Group to be activated/deactivated. Not applicable for Update Multiple Rows templates.

The NPU Counters and AU Counters Row Editors includes the following parameters:

Parameter	Description
Performance Group Activation	The Counters Group to be activated/deactivated. Not applicable for Update Multiple Rows templates.
Group Activation	Defines whether collection of performance counters for the group will be activated/deactivated.

Note that in the current release the following AU Counters cannot be activated in the managed objects:

- De-Registration
- Mobility
- Network Entry
- Idle Mode
- Fast Feedback CQI Handling
- Ack/Nack Channel Handling
- End Transaction Update
- Tx R1 Net Traffic
- Rx R1 Net Traffic
- DL HARQ Sub-Bursts Drops
- DL HARQ Transmission

4.4.4.3 Logging Page

The Logging page is not applicable for Add Rows to Tables templates.

The Logging page comprises the following tabs:

- “NPU Logging Tab
- “Log Severity Tab

4.4.4.3.1 NPU Logging Tab

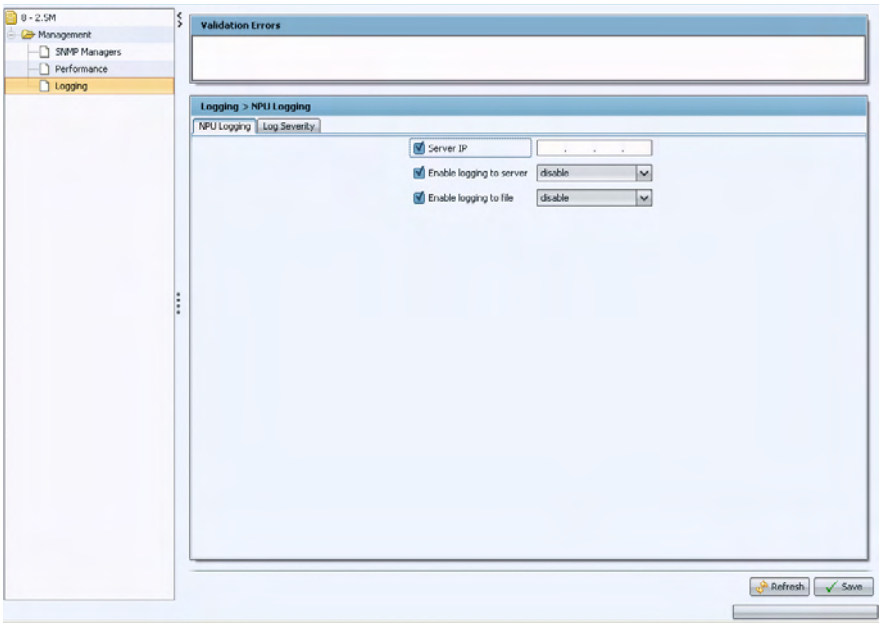


Figure 4-45: The Management Template - Logging Page - NPU Logging Tab

The NPU Logging tab includes the following parameters:

Parameter	Description
Server IP	The server IP address of the server on which logs are to be maintained. If logging to server is enabled, the Server IP cannot be changed. To change the Server IP you need thre steps: 1 Disable logging to server in the managed objects. 2 Update the Server IP in the managed objects. 3 Enable logging to server in the managed objects.
Enable logging to server	Indicates whether or not logging to the server is enabled.
Enable logging to file	Indicates whether or not logging to file is enabled.

4.4.4.3.2 Log Severity Tab

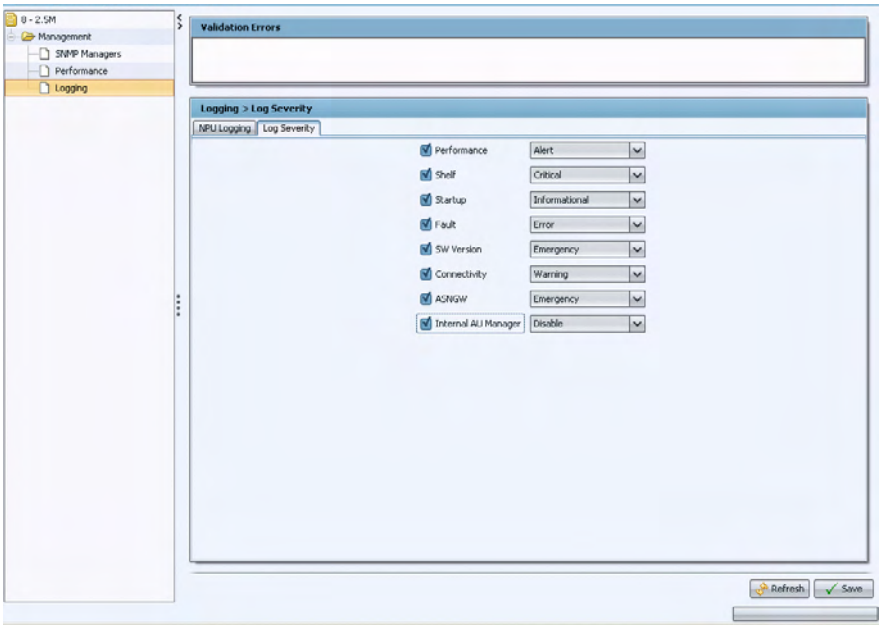
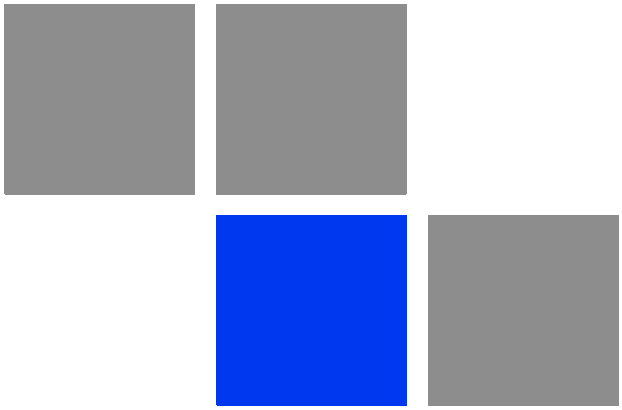
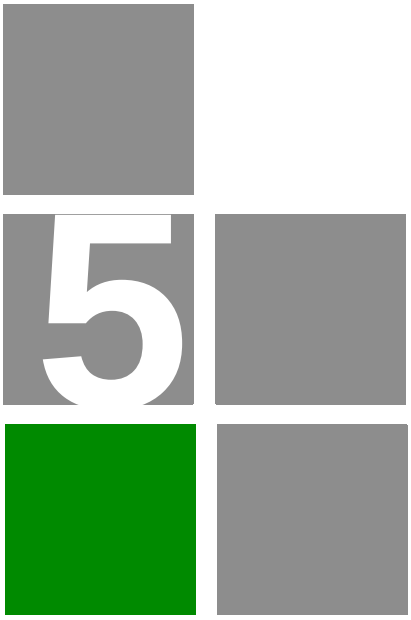


Figure 4-46: The Management Template - Logging Page - Log severity Tab

The Log Severity tab enables setting the minimum severity level that generates a log entry for each of the following types of events:

Parameter	Description
Performance	Performance management procedures.
Shelf	Shelf management procedures.
Startup	System startup procedures.
Fault	Fault management procedures.
SW Version	Software upgrade procedures.
Connectivity	Connectivity procedures.
ASN-GW	ASN-GW procedures (applicable only in Distributed ASN-GW mode).
Internal AU Manager	Internal processes used for managing the AUs.





Chapter 5

The Duplicate Site Manager

In This Chapter:

- "Twin-Site Creation" on page 101
- "The Twin-Site Creation Wizard" on page 103

5.1 Twin-Site Creation

The Duplicate Site Manager provide the ability to “duplicate” existing site configuration file in order to generate new site(s) file(s).

NOTE

The Duplicate Site Manager can be used to “duplicate” a BTS configuration. Currently it does not support duplication of a Mini-Centralized ASN-GW configuration.

The Twin-Site Creation functionality is based on the following assumptions:

- The customer will use the on-line configuration tool to create at least one site configuration file of each "class".
- Each on-line site configuration file may be used as the basis for the creation of additional sites, which are "almost identical twins" regarding configuration. “Twin" sites are sites for which:
  - All managed Objects, including instances, are the same (e.g. same number and types of AUs, BSs, ODUs, Sectors, Services, VLANs, etc.).
  - All corresponding parameters of each Managed Object instance have the same values, except a limited number of parameters defined to be unique. The management system user has to enter these unique parameters values upon creation of a new Duplicate Site configuration file, using pre-prepared network plan guidelines.

Whenever a need rises to create a new “class” of sites, the user has to create the first-of-a-kind site using on-line configuration tool, and then use the Duplicate Site Manager for duplicating it as needed. Note that any site created by offline duplication may be used as a basis for duplication, without any restriction.

Using Duplicate Site configuration files, the actual creation of a new site requires the following steps:

1. Preparing the required Duplicate Site configuration file for the new site, including definition of its unique parameter such as Site ID.
2. Physical installation of equipment.
3. Local provisioning of minimal connectivity and management access configuration (see “Enabling Discovery” on page 1). This step may be skipped in case the next steps are done locally on-site.

4 Following discovery by the management system, loading the pre-prepared Duplicate Site configuration file to the new site using the Restore Configuration task (see “Restore Configuration Task” on page 285.

5 Site restart.

5.2 The Twin-Site Creation Wizard

This section includes:

- "Introduction"
- "Starting the Twin-Site Creation Wizard"
- "Twin-Site Creation Wizard - Step 1"
- "Twin-Site Creation Wizard - Step 2"
- "Twin-Site Creation Wizard - Step 3"
- "Twin-Site Creation Wizard - Step 4"
- "Twin-Site Creation Wizard - Step 5"

5.2.1 Introduction

Creation of a new "twin-site" configuration done is performed using a step-by-step wizard.

When the twin-site creation process is based on a backup configuration file, the file is not supposed to include the following:

- Parameters having "action" nature
- Parameters having "Read-Only" syntax.
- Tables in which all parameters are of the "action" nature or having "Read-Only" syntax.

Some tables (including their whole content) are not relevant to any off-line-configuration-related activity as a whole - although included in the configuration file. All writable parameters of these tables are set to their default values when creating an off-line file.

All BSs table entries related to neighbors (Neighbors List, Neighbors Triggers, ID-IP Mapping) are deleted. The Exclude IP Address table is also deleted. After loading the Duplicate Site configuration file to the new site the user should

configure them using online configuration and perform the required network update actions.

In the different wizard screen only parameters that are needed for the creation of a new Duplicate Site configuration file are displayed:

- Read-only values of the new site are presented on a light-grey background.
- Read-only reference values of the source site (e.g. source site BS IDs) are presented as grayed-out, on a light-grey background.
- Mandatory fields, into which the user has to enter a new value - have a yellow background.
- Non-mandatory fields, into which the user does not have to enter a new value - have a white background. The user may leave them as are, with the default value (which is an empty string in some of the cases).

After completing configuration of parameters in each step, click **Next** to move to the next screen. In case of consistency check failure - the failed field(s) are marked with a red surrounding rectangle. A consistency failure messages is presented on the upper side of the screen, using scrolling (if necessary) in case of many such failures. You may at any time use the **Back** button to go back to previous screens.

In the last screen, click Finish to end the Duplicate Site configuration file creation. You can view the available Duplicate Site configuration files in the File Manager (see "Duplicate Site File Manager" on page 310). From the File Manager you can also initiate the operation of loading a Duplicate Site configuration file to its target site.

5.2.2 Starting the Twin-Site Creation Wizard

To start the Twin-Site Creation Wizard

1 Select *Configuration Management* > *Duplicate Site* from the Navigation Pane or menu bar. The Duplicate Site Manager window opens.

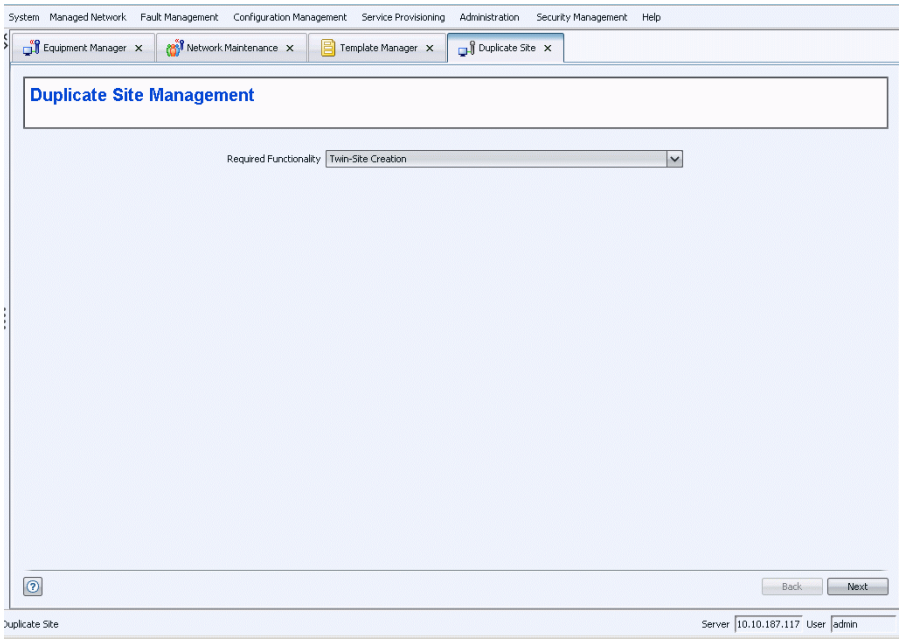


Figure 5-1: Duplicate Site Manager

2 In the Required Functionality field, select Twin-Site Creation (in the current release this is the only option). Click Next to open the first screen of the twin-site creation wizard.

5.2.3 Twin-Site Creation Wizard - Step 1

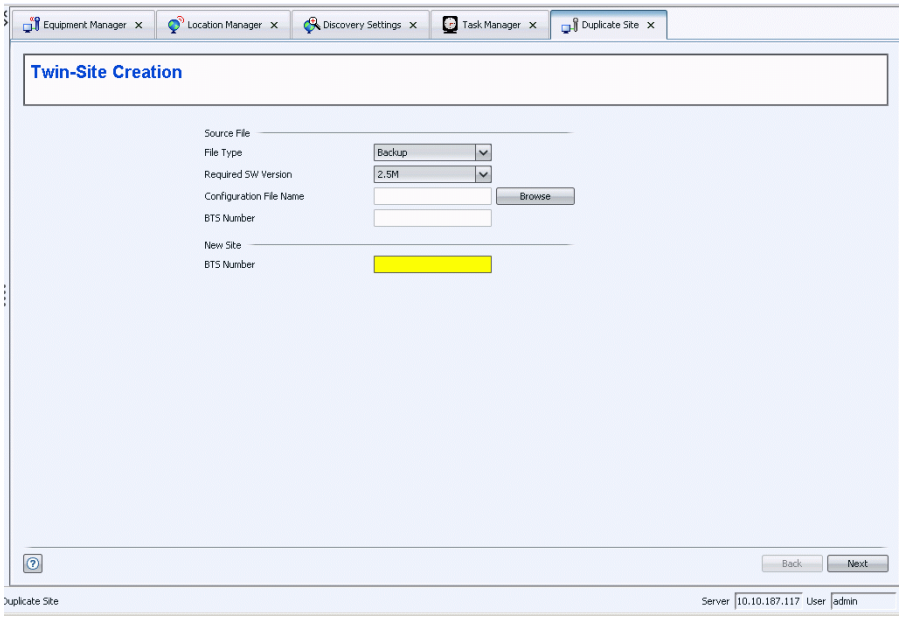


Figure 5-2: Twin-Site Creation Wizard - Step 1

The first screen of the wizard includes the following parameters:

Parameter	Description
Source File	
File Type	Select the type of the file to be used as a basis for the new Duplicate Site configuration file: Backup file or another Duplicate Site file.
Required SW Version	Select the required SW version of the source equipment. In the current release only Sw version 2.5M is applicable.
Configuration File Name	Click on the Browser button to open either the Backup File Selector or Duplicate Site File Selector according the the selected File Type. Only files from devices that used the specified SW Version at the time of file creation will be available for selection.
BTS Number	Read-only. The BTS Number (Site ID) of the source equipment for the selected source file.
New Site	
BTS Number	The BTS Number (Site ID) of the new site. The Duplicate Site configuration file can be loaded only to a site with the specified BTS Number (Site ID), which must be unique in the network. In case the user enters an existing BTS Number, the system prompts him to correct the mistake or to confirm the entered number. The later is applicable when preparing a file for an already-discovered site.

Click Next to open the next screen of the wizard.

5.2.4 Twin-Site Creation Wizard - Step 2

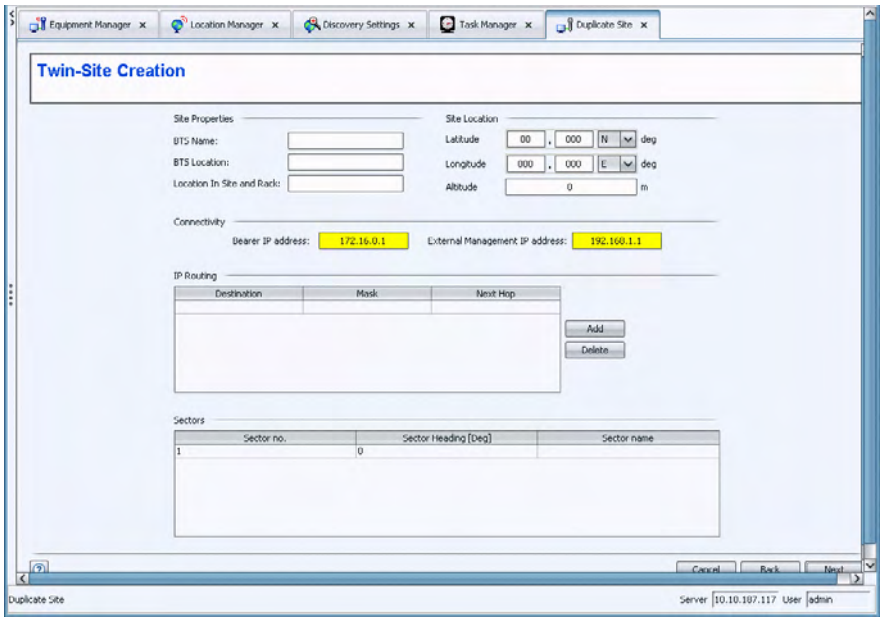


Figure 5-3: Twin-Site Creation Wizard - Step 2

The second screen of the wizard includes the following sections:

- "Site Properties"
- "Site Location"
- "Connectivity"
- "IP Routing"
- "Sectors"

5.2.4.1 Site Properties

Parameter	Description
BTS Name	The name of the BTS. An optional descriptive parameter. A string of up to 32 characters.
BTS Location	The address of the BTS (e.g., 21 Main Street, 2nd Floor). An optional descriptive parameter. A string of up to 70 characters.

Parameter	Description
Local In Site and Rack	An optional description of the physical location of the BTS shelf in the site/rack. A string of up to 32 characters

5.2.4.2 Site Location

Parameter	Description
Latitude	The latitude of the site. Typically should not be configured as it is received from the GPS receiver. The format is ll.mmm,a: ll.is latitude in degrees (between 00 and 89); mmm is in minutes (between 000 and 999); a - is N (north) or S (south).
Longitude	The longitude of the site. Typically should not be configured as it is received from the GPS receiver. The format is lll.mmm,a: lll.is longitude in degrees (between 000 and 179); mmm is in minutes (between 000 and 999); a - is E (east) or W (west).
Altitude	The altitude in meters of the site. Typically should not be configured as it is received from the GPS receiver. The Altidude is in meters, from -300.0 to 9000.0

5.2.4.3 Connectivity

Parameter	Description
Bearer IP Address	The IP address of the Bearer Interface. Must be unique in the network. The default is 172.16.0.1. Not applicable if ASN Topology is Centralized ASN-GW.
External Management IP Address	The IP address of the External Management Interface. Must be unique in the network. The default is 192.168.1.1. Not applicable (same as Bearer) if NMS Connectivity Mode is Unified.

5.2.4.4 IP Routing

Parameter	Description
Destination	The destination host or network IP address for the route.
Mask	The net mask for the route.
Next Hop	The next hop IP address for the route.

A single empty entry is presented, allowing to define one static route. it is recommended to define the default route in order not to lose connectivity with the device after restoring the file on the device. To add more routes, click on the Add button.

Click on the Delete button to remove a selected entry from the table.

5.2.4.5 Sectors

Parameter	Description
Sector no.	Read-only. The sector number.
Sector Heading	The sector heading (the center angle of the sector), in degrees. The range is from 0 to 359.
Sector name	The sector name. A descriptive string of up to 32 printable characters.

Click Next to open the next screen of the wizard.

5.2.5 Twin-Site Creation Wizard - Step 3

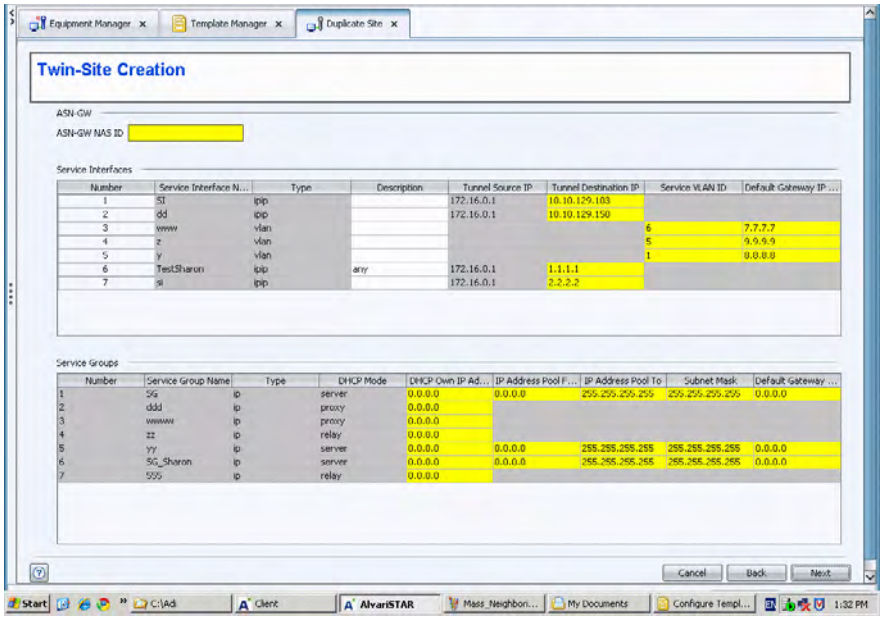


Figure 5-4: Twin-Site Creation Wizard - Step 3

NOTE

If the connectivity mode of the source site is Transparent this screen is not applicable.

The third screen of the wizard includes the following parameters:

Parameter	Description
ASN-GW	
ASN-GW NAS ID	The unique identifier of the ASN-GW NAS. Sent in Access Request message only if configured. Should be in FQDN format. Up to 64 characters.
Service Interfaces *(up to 10)*	
Number	An automatically generated number from 1 up to 10.
Service Interface Name	The name (alias) of the service interface. A string of 1 to 15 characters. Must be unique in the device.
Type	The type of service interface: IP-in-IP, or VLAN,.
Description	A brief desciption of the service interface. A string of up to 70 characters.
Tunnel Source IP	Applicable only for IP-in-IP service interface. The source IP address that indicates the point of origin of the tunnel for the service interface. Set to the value of the Bearer Interface IP Address and cannot be modified.
Tunnel Destination IP	Applicable only for IP-in-IP service interface. The destination IP address that indicates the point of termination of the tunnel for the service interface.
Service VLAN ID	Applicable only for VLAN service interfaces. The Service Interface VLAN ID parameter. The range is 1-9, 11- to 4094. A Service Interface VLAN ID must not conflict with other instances of Service Interface VLAN ID and VLAN IDs of Bearer, Local-Management and External-Management interaces. It must also not conflict with CVID of any transparent MS.
Default Gateway IP Address	Applicable only for VLAN service interfaces. The IP Address of the Default Gateway. Must be unique among all the Host Interfaces IPs (Bearer, Local-Management, Internal-Management, External-Management) and existing instances of Service Interface's Tunnel Destination IP Address and Default Gateway IP Address. Must be in the same subnet.with the IP Address of the DHCP server/proxy/relay to be assigned to a service group using this service interface. Subnet mask is taken as default subnet mask i.e 255.255.255.0
Service Groups *(up to 10)*	
Number	An automatically generated number from 1 up to 10.
Service Name	The name (alias) of the service group. A string of 1 to 15 characters. Must be unique in the device.
Type	The Service Group's type: IP (VPWS service groups are not supported by the wizard).

Parameter	Description
DHCP Mode	The DHCP function mode. ■ Server: The ASN-GW function as a DHCP server that allocates an IP address to the MS from the local pool (in the non-HA mode). ■ Relay: The IP address is obtained using an external DHCP server (in the non-HA mode). ■ Proxy: Non-HA mode: In Non-HA mode the DHCP proxy assigns the MS, the IP address that was received from AAA in the MS profile. In HA mode the DHCP proxy assigns to the MS the IP address received in the MS profile or obtains the IP address from HA using the mobile IP
DHCP Own IP address	Applicable only for IP Service Groups. The IP address of the DHCP server/relay/proxy. For a service group using a VLAN service interface, should be in same subnet with the Default Gateway configured for the service interface associated with the service group. Subnet mask is taken as the default subnet mask i.e 255.255.255.0.
IP Address Pool From:	Applicable only in Server mode. The first address in the address pool.
IP Address Pool To:	Applicable only in Server mode. The last address in the address pool.
Subnet Mask	Applicable only in Server mode. The subnet mask to be provided by local DHCP Server with IP address. In the Proxy mode, this value is used if appropriate parameter is not received in RADIUS Access-Accept
Default Gateway IP Address	Applicable only in Server mode. IP address of Default Gateway to be provided by local DHCP Server with IP address. In theProxy mode, this value is used if appropriate parameter is not received in RADIUS Access-Accept.

Click Next to open the next screen of the wizard.

5.2.6 Twin-Site Creation Wizard - Step 4

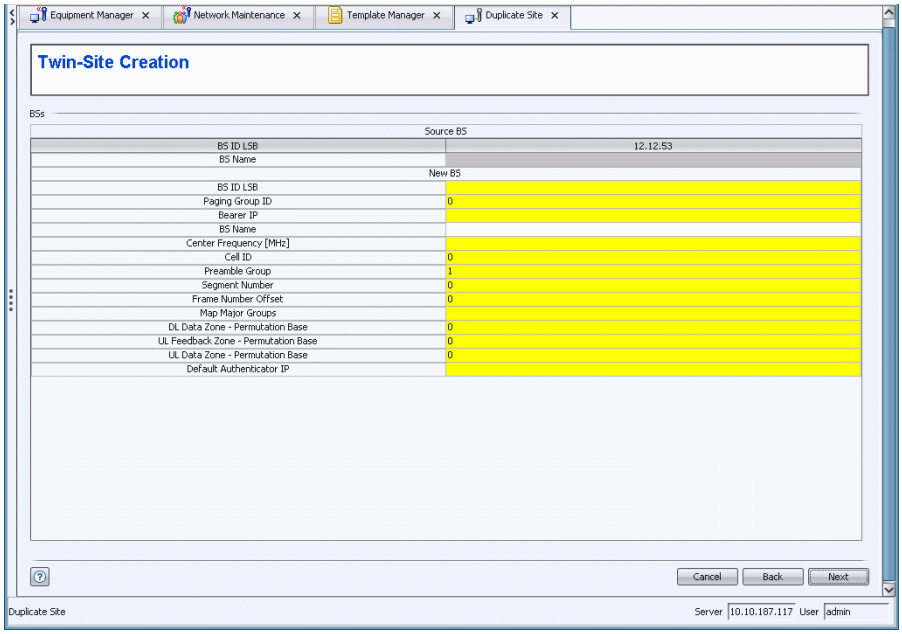


Figure 5-5: Twin-Site Creation Wizard - Step 4

The fourth screen of the wizard includes the following parameters:

Parameter	Description
Source BS *(up to 6)*	
BS ID LSB	The unique identifier of the BS.
BS Name	The name of the BS.
New BS	
BS ID LSB	The unique identifier of the BS. The management system will reject a BS ID LSB already assigned to another BS in the managed wireless network. The format is x.y.z, where x, y and z are in the range from 0 to 255.
Paging Group ID	The Paging Group ID of the BS. Applicable only if Idle Mode is enabled. The range is from 0 to 65535. Must be set to a value other than 0. Must be unique per BS.
Bearer IP Address	The IP address of the BS's Bearer Interface.
BS Name	The name of the BS. An optional descriptive parameter. A string of up to 32 printable characters.

Parameter	Description
Center Frequency	The center of the frequency band in which the BS will transmit, in MHz. The available values, in accordance with the bands supported by different ODUs, are: ■ 2022.5 to 2217.5 in steps of 0.125 ■ 2302.5 to 2397.5 in steps of 0.125 ■ 2487.5 to 2687.5 in steps of 0.125 ■ 3302.5 to 3397.5 in steps of 0.125 ■ 3402.5 to 3597.5 in steps of 0.125 ■ 3602.5 to 3797.5 in steps of 0.125 The available values for Center Frequencies indicated above are for a Bandwidth of 5 MHz. For a different bandwidth, the actually valid values are from f1+1/2BW to f2-1/2BW, where f1 is the lowest frequency of the ODU's radio band, f2 is the highest frequency of the ODU's band, and BW is the configured bandwidth. Note that ODU-2305-2360-000N-36-1x1-Y-0 includes two bands: 2305-2320, 2345-2360 MHz.
Cell ID	The Cell ID (IDCell) used for preamble selection. The range is from 0 to 31.
Preamble Group	The preamble group (1 or 2). A value of 2 is applicable only for the following combinations of Segment Number and Cell ID values: Segment Number=0, Cell ID=0, 3, 6, 9, 12, 15. Segment Number=1, Cell ID=1, 4, 7, 10, 13, 16. Segment Number=2, Cell ID=2, 5, 8, 11, 14, 17
Segment Number	The segment (BS) number in a three sector BS (0-2). This number influences the values available for Preamble Group selection (see above) preamble selection and the configuration of Map Major Groups (see below).
Frame Number Offset	Controls the offset applied between the internal frame count and the reported frame number. The range is from 0 to 15.
Map Major Groups	A bit map (6 bits) indicationg the major groups allocated to the BS for maps transmission. If BW=5 MHz, bits 1, 3 and 5 are not relevant. If Segment Number is 0, then bit #0 should be set (1). If Segment Number is 1, then bit #2 should be set (1). If Segment Number is 2, then bit #4 should be set (1).
DL Data Zone - Permutation Base	The permutation base used in the downlink data zone. The valid range is from 0 to 31.

Parameter	Description
UL Feedback Zone - Permutation Base	The permutation base used in the uplink feedback zone. The valid range is from 0 to 69.
UK Data Zone - Permutation Base	The permutation base used in the uplink data zone. The valid range is from 0 to 69.
Default Authenticator IP Address	The IP address of the default authenticator ASN GW. Read-only for Transparent connectivity mode.

Click Next to open the next screen of the wizard.

5.2.7 Twin-Site Creation Wizard - Step 5

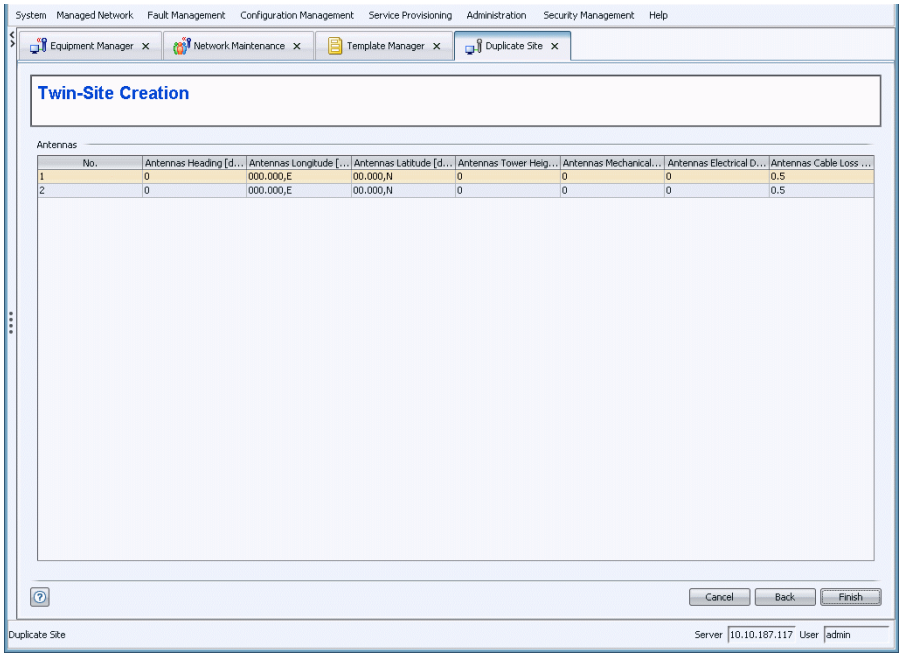


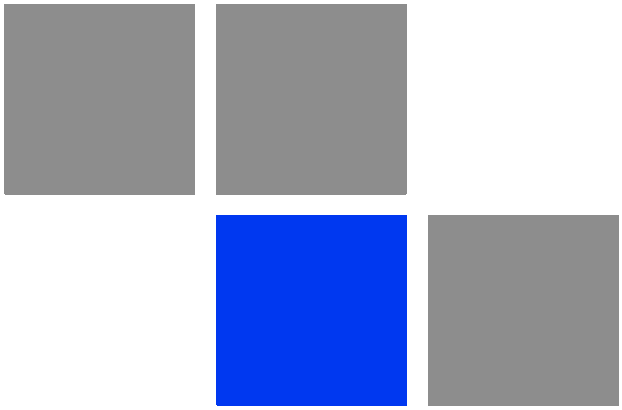
Figure 5-6: Twin-Site Creation Wizard - Step 5

The fifth and last screen of the wizard includes the following parameters:

Parameter	Description
Antennas *(up to 28)*	
No.	The index number of the antenna.
Heading (deg)	Used only for information (inventory) purposes. The the azimuth angle (in degrees) between the center of the horizontal antenna beamwidth and the true north; counting clockwise.The range is from 0 to 359.

Parameter	Description
Longitude (deg)	Used only for information (inventory) purposes. The longitude of the antenna. The format is lll.mmm,a: lll.is longitude in degrees (between 000 to 179); mmm is in minutes (between 000 and 999); a - is E (east) or W (west)
Latitude (deg)	Used only for information (inventory) purposes. The latitude of the antenna. The format is ll.mmm,a:ll.is longitude in degrees (between 00 to 89); mmm is in minutes (between 000 and 999); a - is S (south) or N (north)
Tower Height (m)	Used only for information (inventory) purposes. The height of the antenna above the ground in meters. The range is from 0 to 500.
Mechanical Down Tilt (deg)	Used only for information (inventory) purposes. The downwards mechanical tilt of the antenna (in degrees) as opposed to the electrical tilt already integrated in the antenna (and thus taken as reference; instead of the horizontal plane). The range is from -90.0 to 90.0 using 0.1 degree resolution.
Electrical Down Tilt (deg)	Used only for information (inventory) purposes. The downwards electrical tilt of the antenna, in degrees. The range is from -90.0 to 90.0 using 0.1 degree resolution.
Cable Loss (dB)	Used only for information (inventory) purposes. The attenuation (in dB) of the cable between the ODU port and antenna port. The range is from 0 to 20 in 0.1 dB steps.

Click Finish to finish the wizard. The newly created Duplicate Site configuration file is now available in the File Manager. The first screen of the wizard is displayed, allowing creation of another Duplicate Site configuration file.



Chapter 6

Managing a Single Device

NOTE

This Chapter describes the Device Manager for the BTS equipment (Indoor and Outdoor) and for the Mini-Centralized ASN-GW. Appropriate note will indicate pages or parameters that are applicable not applicable for all device types.

In This Chapter:

- "Using the Device Manager" on page 118
- "Introduction to Device Management" on page 122
- "Site Equipment View Page for BTS Equipment" on page 124
- "Site Page" on page 130
- "Connectivity" on page 140
- "Management Page" on page 159
- "Equipment" on page 167
- "ASN-GW" on page 188
- "BS (not applicable for Mini-Centralized ASN-GW)" on page 217
- "Site Sector (not applicable for Mini-Centralized ASN-GW)" on page 263

6.1 Using the Device Manager

- "Introduction to the Device Manager" on page 118
- "The Device Manager Components" on page 119
- "Common Control Buttons" on page 120
- "Working with Configuration Tables" on page 120

6.1.1 Introduction to the Device Manager

The Device Manager enables managing a single device and its components (if applicable).

To open the Device Manager for a selected device:

In the Equipment Manager, double-click on the selected entity, or select it and click on the **Configure** button, or right-click on it and select the **Configure** option in the pop-up window. The Device Manager for the selected entity opens, displaying the main page for the device.

6.1.2 The Device Manager Components

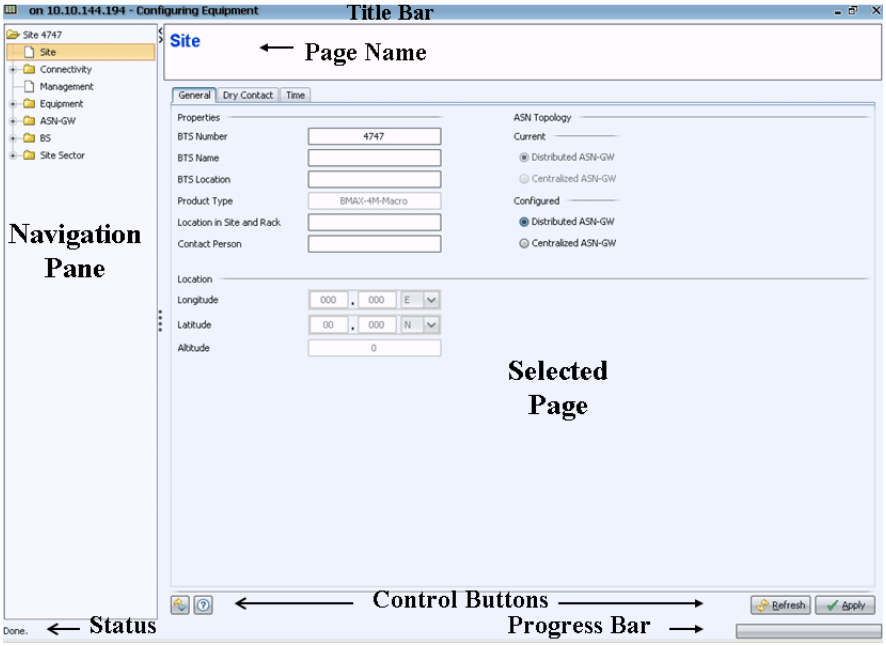


Figure 6-1: The Device Manager Components (Indoor BTS)

The Device Manager window comprises the following components:

Component	Description
Title Bar	Identifies the managed device's name. It also includes standard icons for minimizing, maximizing or closing the Device Manager.
Page Name	The name of the current page.
Navigation Pane	Displays all configuration/information pages and enables opening a selected page by clicking on it.
Selected Page	The selected page. Enables viewing/managing the applicable parameters
Status Bar	Indicates the status of the current operation, and displays a progress bar when applicable.

6.1.3 Common Control Buttons

The following buttons are common to most configuration/information pages.

Button	Description
Help	Opens the Help Navigator and Help Topic Window for the page.
Refresh from Device	Updates the information displayed in the page according to current values acquired from the device
Refresh	Updates the information displayed in the page according to current values acquired from the database
Apply	Implements the modifications to the configuration of the device. Exiting the Device Manager or switching to another page without applying discards the changes. This button is not available in information pages that display read-only details and do not include any configurable parameters.

6.1.4 Working with Configuration Tables

In some pages, tables are used for displaying information and for configuring and managing multiple entities of the same type.

Grayed-out cells are read-only.

To modify the configuration of an existing entity:

Double-click on the applicable cell: In a text-cell, edit the content. In some cells a drop-down menu will open, enabling selection of the required option. Click on any other cell to apply the change to the selected cell. At this stage the change is applied only to the display, and the displayed parameters of the modified entry are colored blue. The change is applied to the device only after clicking on the **Apply** button.

To add a new entity (if applicable):

Click on the **Add** button. A new row will be added. Some parameters may be set to their default values, allowing (if applicable) modification to other values. Configure the required parameters. At this stage the change is applied only to the display,

and the displayed parameters of the new entry are colored green. The change is applied to the device only after clicking on the **Apply** button.

To delete one or several entities (if applicable):

Select the entities you want to delete and click on the **Delete** button. At this stage the change is applied only to the display, and the displayed parameters of the entries to be deleted are colored red. The change is applied to the device only after clicking on the **Apply** button.

6.2 Introduction to Device Management

The tree menu in the navigation pane of the Device Manager window enables selecting the following view and configuration pages:

“Site Equipment View Page for BTS Equipment” on page 124

- “Site Equipment View Page for BTS Equipment” on page 124
- “Site Equipment View Page for Mini-Centralized ASN-GW” on page 129
- “Connectivity”:
  - “L1/L2 Connectivity Page” on page 140
  - “IP Interface Page” on page 145
  - “IP Routing Page” on page 148
  - “QoS Marking Rules Page” on page 149
  - “ACL Page” on page 151
- “Management Page” on page 159
- “Equipment”:
  - “Shelf”:
    - “Power Supply Page (applicable only for Indoor BTS)” on page 168
    - “NPU Page” on page 169
    - “AU Slot # Page (not applicable for Mini-Centralized ASN-GW)” on page 174
  - “External (not applicable for Mini-Centralized ASN-GW)”:
    - “ODU # Page” on page 179
    - “GPS Page” on page 182
    - “Power Feeder Page (applicable only for Indoor BTS)” on page 183
    - “Antenna Page” on page 184

- "ASN-GW":
  - "AAA Page" on page 188
  - "QoS Marking Page" on page 202
  - "Service Group Page" on page 190
  - "SFA Page" on page 204
    - "Service Profile" on page 210
  - "ASN-GW Keep Alive Page" on page 216
- "BS (not applicable for Mini-Centralized ASN-GW)" node, per specific BS sub-node:
  - "Radio Node"
    - "Radio Basic Page" on page 222
    - "Radio Advanced Page" on page 235
  - "Connectivity Node"
    - "Connectivity Basic Page" on page 247
    - "Connectivity Advanced Page" on page 250
  - "Services Page" on page 255
- "Site Sector (not applicable for Mini-Centralized ASN-GW)" Node, per Site Sector:
    - "Site Sector # Page" on page 263

6.3 Site Equipment View Page for BTS Equipment

The Site Equipment View page provides a graphical view of the current status of the BTS's components. The display is refreshed every 15 seconds.

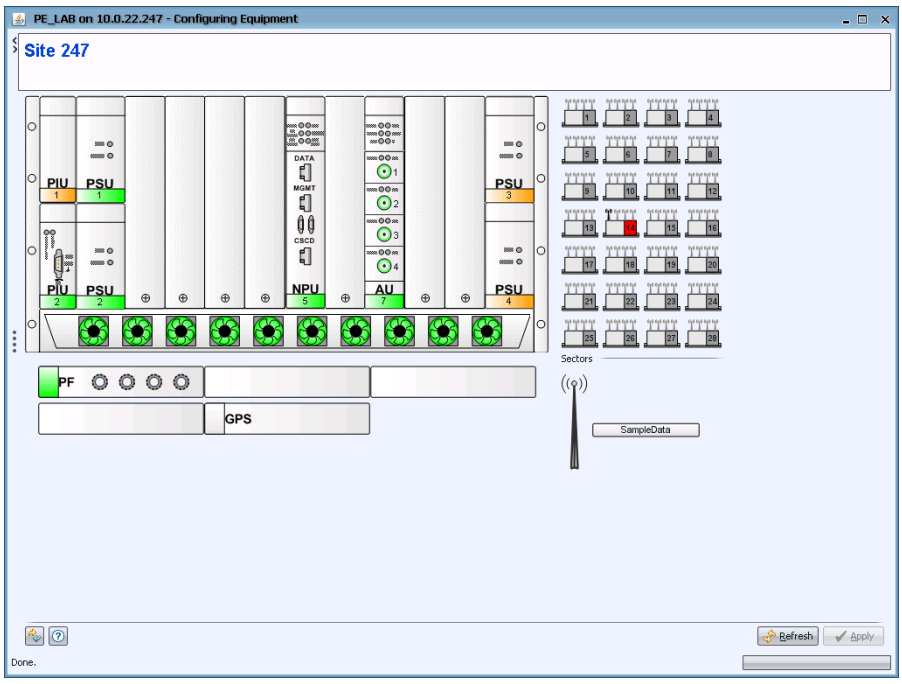


Figure 6-2: Site View Page, Indoor BTS

The Site Equipment View page includes the following components:

- "Chassis View (Indoor BTS)" or "Components View (Outdoor BTS)", according to the type of the managed device.
- "Outdoor Units View"
- "Sectors View"
- "External Devices View"

6.3.1 Chassis View (Indoor BTS)

The Chassis view is a graphical display of the BTS, showing the installed components and their status. Each of the installed modules (NPU, AUs, PIUs, PSUs) and the 10 fans of the AVU module is marked in a color according to the highest severity open alarm. Green indicates that there are no alarms on the component.

The following information and actions are available:

- PIUs/PSUs: If the module is installed, the background color of its number indicates its highest severity open alarm. Green indicates that there are no alarms on the component. If the module is defined as Required (refer to "Power Supply Page (applicable only for Indoor BTS)" on page 168) but is not installed, the background color is yellow. Double-click on an installed or a required but not installed module to open the Power Supply configuration page (refer to "Power Supply Page (applicable only for Indoor BTS)" on page 168).

- Double-click on the NPU module to open the NPU page (refer to "NPU Page" on page 169).

- In an installed AU, the background color of its number indicates its highest severity open alarm. Green indicates that there are no alarms on the component. If the module is defined as Required (refer to "Card Properties" on page 170) but is not installed, the background color is orange. If a module is installed but not defined yet, the background color is purple. Double-click on an installed or a required but not installed AU to open the configuration page for the selected AU (refer to "AU Slot # Page (not applicable for Mini-Centralized ASN-GW)" on page 174).

- In an installed AU, each of the ODU connectors (channels) are marked as follows:

  - Green: The ODU port is Up (no fault) and the ODU port is set to No Shutdown.

  - Red: The ODU port is Down (fault) or the ODU port is set to Shutdown.

- Double-click on an "empty" AU module to open the New AU dialog box, allowing you to define the properties of the AU required for the slot. Refer to "Creating/Deleting an AU (not applicable for Mini-Centralized ASN-GW)" on page 172 for more details.

- Click on an installed AU port to view relevant associations (if applicable): A blue background will be added to the selected AU Port as well as to the ODU and Site Sector associated with it.

6.3.2 Components View (Outdoor BTS)

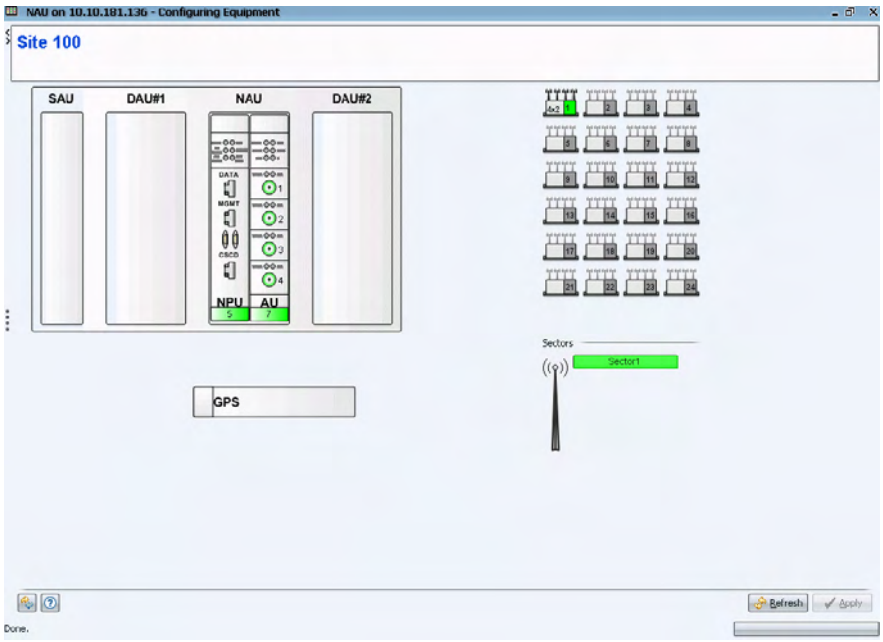


Figure 6-3: Site View Page, Outdoor BTS

The components view is a graphical display of the BTS, showing the installed components and their status. Each of the installed modules (NPU, AUs) is marked in a color according to the highest severity open alarm. Green indicates that there are no alarms on the component.

The following information and actions are available:

- Double-click on the NPU module to open the NPU page (refer to "NPU Page" on page 169).

- In an installed AU, the background color of its number indicates its highest severity open alarm. Green indicates that there are no alarms on the component. If the module is defined as Required (refer to "Card Properties" on page 170) but is not installed, the background color is orange. If an AU is installed but not defined yet, the background color is purple. Double-click on an installed or a required but not installed AU to open the configuration page

for the selected AU (refer to "AU Slot # Page (not applicable for Mini-Centralized ASN-GW)" on page 174).

- In an installed AU, each of the ODU connectors (channels) are marked as follows:
  - » Green: The ODU port is Up (no fault) and the ODU port is set to No Shutdown.
  - » Red: The ODU port is Down (fault) or the ODU port is set to Shutdown.
- Double-click on an "empty" AU module to open the New AU dialog box, allowing you to define the properties of the AU required for the slot. Refer to "Creating/Deleting an AU (not applicable for Mini-Centralized ASN-GW)" on page 172 for more details.
- Click on an installed AU port to view relevant associations (if applicable): A blue background will be added to the selected AU Port as well as to the ODU and Site Sector associated with it.

6.3.3 Outdoor Units View

The Outdoor Units view shows the ODU icons all the Outdoor Units (up to 28 for Indoor BTS, up to 24 for Outdoor BTS) that can be defined. An undefined ODU is marked in gray. A defined ODU is marked in either green or red, indicating its operational status. Note that the operational status of an ODU can be OK (Up) only if there are no alarms. If you create an ODU and do not associate it (see "Site Sector # Page" on page 263), it will be marked in green, however it will not be operational.

If the ODU exists and is associated (meaning that it is reachable), its ports configuration (1x1 or 4x2) will be indicated on the left side.

Click on an associated ODU's icon to view relevant associations: A blue background will be added to the selected ODU as well as to the AU ODU connectors (AU channels) and Site Sector associated with it.

Double-click on any of the defined ODUs to open the specific ODU configuration page.

6.3.4 Sectors View

The Sectors view shows text boxes for the defined Site Sectors. The name of a defined Sector is displayed in the relevant area. Note that the name can also be an

empty string (null). It is recommended to define a Sector Name for all defined sectors to provide clear distinction between site sectors.

Click on a Sector's text box to view relevant associations: A blue background will be added to the selected Sector as well as to the ODU(s) and AU channel(s) associated with it (if applicable).

Double-click on any of the Site Sectors to open the specific site sector configuration page.

6.3.5 External Devices View

The External Devices View (below the Chassis View) displays information related to external devices connected to the BTS. In the current release the applicable devices are GPS and, if defined, Power Feeder(s). Power Feeders are not applicable for an Outdoor BTS.

The GPS indication includes the status of the signal received from the GPS equipment. If GPS is not configured the GPS status indication is marked gray.

Double-click on the GPS status indication to open the GPS configuration page (refer to "GPS Page" on page 182).

The status indication of a defined Power Feeder (PF) is always green. Double-click on the Power Feeder status indication to open the Power Feeder configuration page (refer to "Power Feeder Page (applicable only for Indoor BTS)" on page 183)

6.4 Site Equipment View Page for Mini-Centralized ASN-GW

The Site Equipment View page provides a graphical view of the current status of the Mini-Centralized ASN-GW. The display is refreshed every 15 seconds.

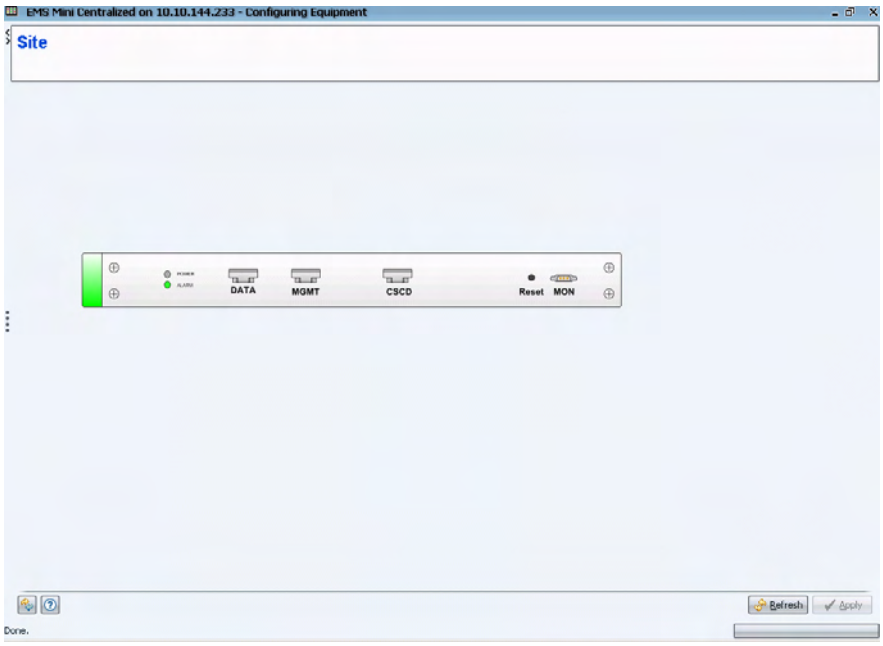


Figure 6-4: Site View Page, Mini-Centralized ASN-GW

The Mini-Centralized ASN-GW view shows the Mini-Centralized ASN-GW device. The color marking on the left side is according to the highest severity open alarm. Green indicates that there are no alarms on the device.

Double-click on the device's drawing to open the NPU page (refer to "NPU Page" on page 169).

6.5 Site Page

The Site page enables defining general site properties, such as the site location, date and time, and ASN Topology settings, as well as the use of input and output alarms, time synchronization, and clock source settings.

The Site page comprises the following three tabs:

- "General Tab"
- "Dry Contact Tab (applicable only for Indoor BTS)"
- "Time Tab"

6.5.1 General Tab

The General tab enables viewing/editing the general site properties. For BTS equipment it also enables viewing/editing the ASN Topology and the Location parameters.

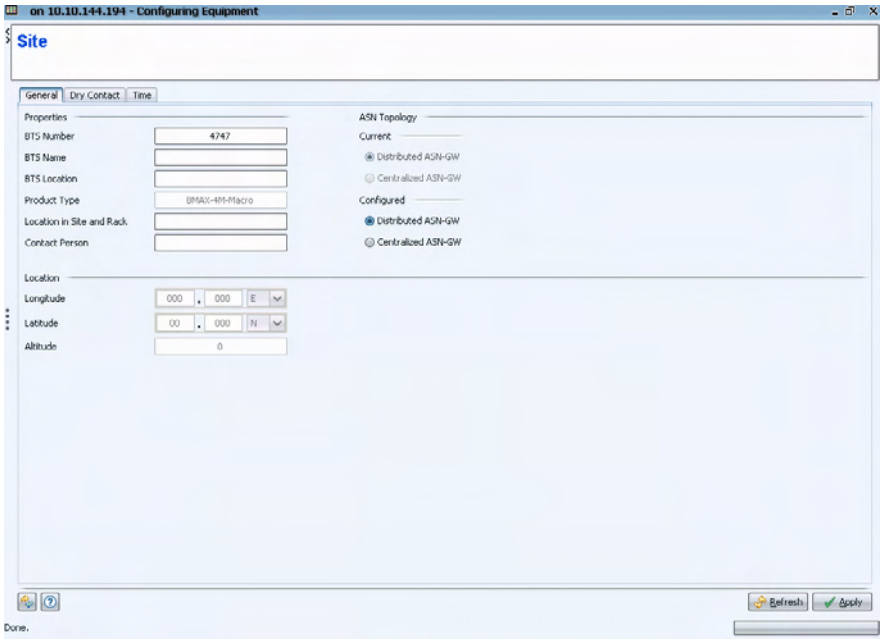


Figure 6-5: Site Page - General Tab (BTS)

The General tab includes the following sections:

- "Properties"
- "Location (not applicable for Mini-Centralized ASN-GW)"
- "ASN Topology (not applicable for Mini-Centralized ASN-GW)"

6.5.1.1 Properties

The Properties section includes the following parameters:

Parameter	Description
BTS Number	The ID number of the device. The BTS Number (Site ID) is used by the management system as identifier of the device and must be unique in the managed network. The range is from 0 to 999999. The default value 0 is not a valid BTS Number: it indicates that the BTS Number was not configured and a valid BTS Number must be configured. A BTS with Site Number 0 will not be discovered by the management system. Since the BTS Number is used by the management system to identify the device, it is highly recommended not to modify it. If necessary, you must follow the BTS Number Change process described below.
BTS Name	The name of the device. An optional descriptive parameter. A string of up to 32 characters.
BTS Location	The location of the device (e.g., 21 Main Street, 2nd Floor). An optional descriptive parameter. A string of up to 70 characters.
Product Type	A read-only description of the product type.
Locaton in Site and Rack	An optional description of the physical location of the device in the site/rack. A string of up to 32 characters.
Contact Person	The name of the site contact person. An optional descriptive parameter. A string of up to 32 characters.

IMPORTANT

BTS Number (Site ID) Change Process:

1 Change the BTS Number (Site ID) using either the management system or CLI. If you are using CLI, run the command *npu(config)# site identifier <site id <0-999999>>* and save the new configuration using the command *npu# write*.

2 Restart the site (NPU) to apply the change. This will clean the active alarms and the Performance Monitoring files with the old BTS Number (ID) from the database of the NPU].

3 Delete “old” site from the database of the management system (In the Equipment Manager select the BTS and click Delete).

4 The management system will automatically close all open alarms, remove the old BTS Number (ID) from all the tasks such as Performance Collection, Backup Configuration and, Keep Alive. It will also stop processing new alarms form this “old” site.

5 The user should perform manual discovery of the “new” device with the old IP address (which now doesn’t exist in the database of the management system). After discovery the management system will initiate full synchronization as for any new device.

6 The management system will add this new device to all network-wide tasks such as keep-alive.

7 Regarding user-initiated tasks such as Performance Collection and Backup Configuration, the user should manually modify and add this device to the existing tasks.

6.5.1.2 Location (not applicable for Mini-Centralized ASN-GW)

The Location section includes the following parameters:

Parameter	Description
Longitude	The longitude of the site. Configurable only if Configured GPS Type (see “GPS Page” on page 182) is None. If Configured GPS Type is Trimble the longitude is read-only, displaying the value calculated by the GPS receiver. The format is lll.mmm,a: lll.is longitude in degrees (between 000 to 179); mmm is in minutes (between 000 and 999); a - is E (east) or W (west).
Latitude	The latitude of the site. Configurable only if Configured GPS Type (see “GPS Page” on page 182) is None. If Configured GPS Type is Trimble the latitude is read-only, displaying the value calculated by the GPS receiver. The format is ll.mmm,a: ll.is latitude in degrees (between 00 to 89); mmm is in minutes (between 000 and 999); a - is N (north) or S (south).
Altitude	The altitude in meters of the site. Configurable only if Configured GPS Type (see “GPS Page” on page 182) is None. If Configured GPS Type is Trimble the Altitude is read-only, displaying the value calculated by the GPS receiver.. The Altidude is in meters, from -300.0 to 9000.0

6.5.1.3 ASN Topology (not applicable for Mini-Centralized ASN-GW)

The ASN Topology section includes the following parameters:

Parameter	Description
Current	Indicates whether the current ASN topology is based on a Distributed ASN-GW or a Centralized ASN-GW.
Configured	Enables to change the current ASN topology. Select the Distributed/Centralized ASN-GW topology and click Apply. The change will be applied after the next NPU reset.

IMPORTANT

A change in ASN Topology will take effect after next reset.

NOTE

When the device operates in Centralized ASN Topology all ASN-GW pages, QoS Marking Rules page and ACL Page are blocked for viewing/modifications.

6.5.2 Dry Contact Tab (applicable only for Indoor BTS)

The Dry Contact tab enables defining the use of input and output alarms.

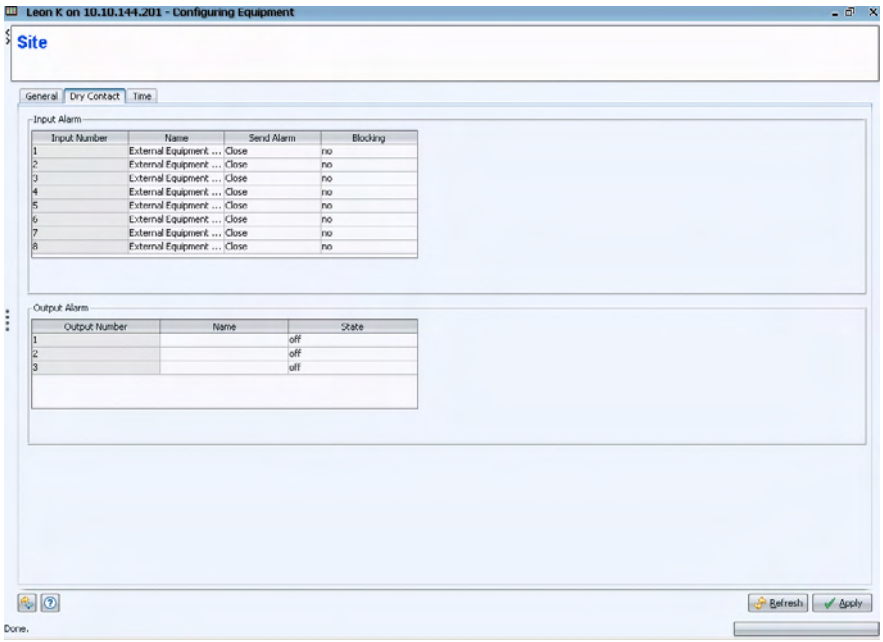


Figure 6-6: Site Page - Dry Content Tab

The Dry Contact tab includes the following sections:

- "Inputs Alarm"
- "Output Alarm"

6.5.2.1 Inputs Alarm

Dry-contact input alarms are external devices that are connected to the BTS unit, and notify the system when there is a change in external conditions.

The Inputs Alarm table includes the following parameters:

Parameter	Description
Input Number	The Input Alarm Number (1-8). Refer to the table below for details on the mapping of Input Alarm Numbers to pins in the ALRM-IN connector.

Parameter	Description
Name	The name of the input alarm. Double-click on an entry to open the drop-down selection menu with the following options: ■ Commercial Power Failure ■ Fire ■ Enclosure Door Open ■ High Temperature ■ Flood ■ Low Fuel ■ Low Battery Threshold ■ Generator Failure ■ Intrusion Detection ■ External Equipment Failure
Send Alarm	Defines the contacts condition for activating the alarm: Close or Open.
Blocking	Indicates whether or not blocking is applied for the input alarm (yes or no). If blocking is applied alarm will not be generated regardless of the status of the input. Double-click on an entry to open the drop-down selection menu with the on and off options.

The mapping of the ALRM-IN connector's pins to alarms is:

Pin Number	Alarm Number
3 and 15	1
4 and 16	2
1 and 17	3
6 and 18	4
7 and 19	5
8 and 20	6
9 and 21	7
10 and 22	8

6.5.2.2 Output Alarm

Dry-contact output alarms can be raised/cleared by the user to notify an external device connected to the BTS unit.

The Outputs Alarm table includes the following parameters:

Parameter	Description
Output Number	The Output Alarm Number (1-3). Refer to the table below for details on the mapping of Output Alarm Numbers to pins in the ALRM-OUT connector
Name	The name of the output alarm. A descriptive string of up to 256 characters.
State	Indicates the state of the output alarm (On or Off). Double-click on an entry to open the drop-down selection menu with the on and off options.

The mapping of the ALRM-OUT connector's pins to alarms is:

Pin Number	Corresponding Alarm Number
1(FIX) - 2(N.C) - 14(N.O)	1
11(FIX)- 12(N.C) - 13(N.O)	2
23(FIX) - 24(N.C) - 25(N.O)	3

6.5.3 Time Tab

The Time tab enables defining the time and date parameters of the site. For BTS equipment it also enables defining the synchronization and GPS related settings for the site.

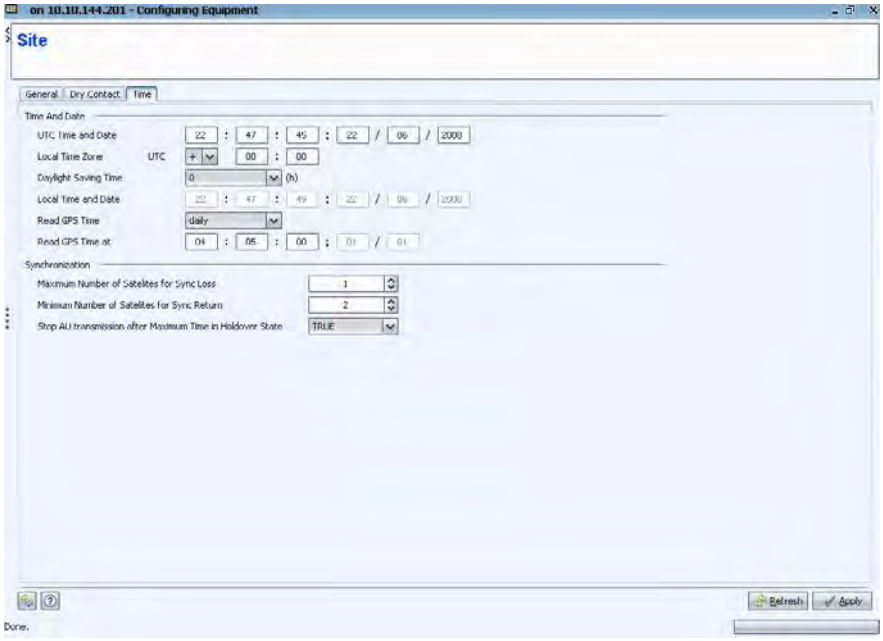


Figure 6-7: Site Page - Time Tab (BTS)

The Time tab includes the following sections:

- "Time And Date"
- "Synchronization (not applicable for Mini-Centralized ASN-GW)"

6.5.3.1 Time And Date

The Time and Date section includes the following parameters:

Parameter	Description
UTC Time and Date	The UTC (Coordinated Universal Time) date and time. In BTS equipment configurable only if the Configured GPS Type is set to None (see "GPS Page" on page 182). The format is hh: mm: ss, dd/mm/yyyy hh between 0 and 23, mm between 0 and 59, ss between 0 and 59, dd/mm with usual date and month rules, yyyy between 2006 to 9999.
Local Time Zone	The offset of the local time from the UTC. The range is -12:00 to +13:00 in 30 minutes resolution.
Daylight Saving Time	This parameter defines the amount of time by which the clock should be advanced during the daylight saving period. The available values are 0 (daylight saving disabled), 1 and 2 (hours).
Local Time and Date	A read-only display of the local date and time (using 24-hour clock) as calculated using the data (UTC time) from the GPS receiver and taking into account the Local Time Zone and Daylight Saving Time parameters. The format is: hh:mm:ss; dd/mm/yyyy. For example: 13:04:23; 12/07/2006.
Read GPS Time	Not applicable for Mini-Centralized ASN-GW. The interval after which the NPU should obtain the GPS time for frame synchronization, and send it to the AUs. The available options are: ■ hourly ■ daily ■ monthly ■ yearly
Read GPS Time At	Not applicable for Mini-Centralized ASN-GW. The time when the NPU should obtain the GPS time for frame synchronization. The format is hh:mm:ss; dd/mm. hh between 0 and 23, mm between 0 and 59, ss between 0 and 59, dd/mm with usual date and month rules.

6.5.3.2 Synchronization (not applicable for Mini-Centralized ASN-GW)

The Synchronization section includes the following parameters:

Parameter	Description
Maximum Number of Satellites for Sync Loss	The minimum number of received satellites required for maintaining synchronization. The range is from 0 to 11. Must be lower than Minimum Number of Satellites for Sync Return.
Minimum Number of Satellites for Sync Return	The minimum number of received satellites required for the GPS to resynchronize so that the NPU can terminate holdover.
Stop AU transmission After Maximum Time in Holdover State	Indicates whether the AU modules should stop data transmission if the GPS lost synchronization with its satellites and the holdover passed timeout has occured (True or False). When True, the AU will stop transmitting after being in holdover state for more than Holdover Passed Timeout.

6.6 Connectivity

The Connectivity node includes five pages:

- "L1/L2 Connectivity Page"
- "IP Interface Page"
- "IP Routing Page"
- "QoS Marking Rules Page"
- "ACL Page"

6.6.1 L1/L2 Connectivity Page

The L1/L2 Connectivity page enables viewing/modifying defining the various aspects of site connectivity, such as Connectivity Mode, VLAN IDs, VLAN translation, and the parameters of Ethernet ports.

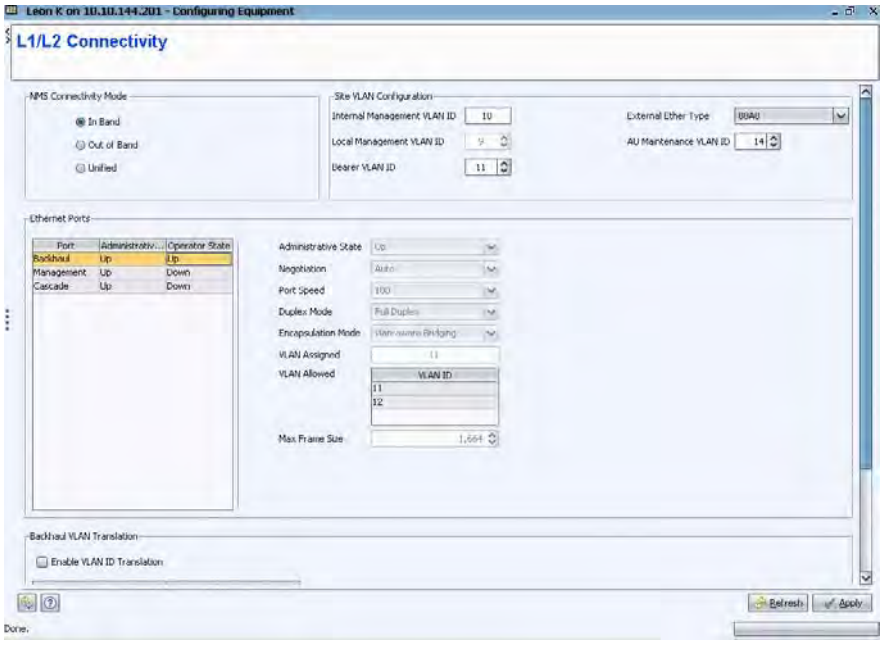


Figure 6-8: L1/L2 Connectivity Page - Upper Section

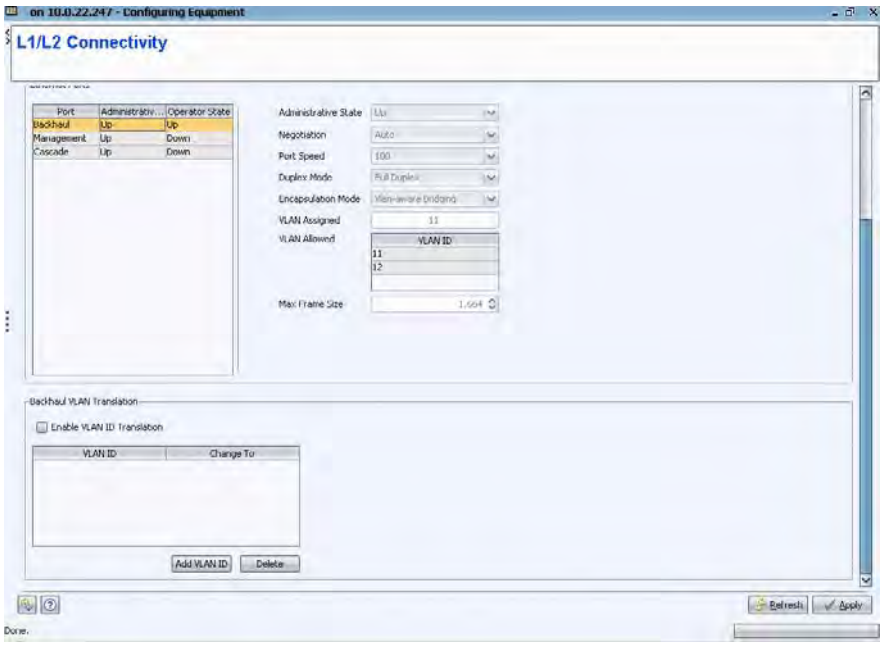


Figure 6-9: L1/L2 Connectivity Page - Lower Section

The Site Connectivity tab includes the following sections:

- "NMS Connectivity Mode"
- "Site VLAN Configuration"
- "Ethernet Ports"
- "Backhaul VLAN Translation"

6.6.1.1 NMS Connectivity Mode

The NMS Connectivity Mode section enables separation of the bearer IP and NMS IP domains through definition of the connectivity mode.

The following NMS connectivity modes are available for selection:

Parameter	Description
In Band	When In Band mode is selected, the VLAN is used to differentiate between the bearer and external NMS IP domains on the DATA port. The bearer VLAN is used for the bearer IP domain and the external-management VLAN is used for the external NMS IP domain. The MGMT port and CSCD (Cascade) port are assigned to the local-management VLAN in this connectivity mode.(The CSCD port is not applicable for Outdoor BTS)
Out of Band	When Out of Band mode is selected, the bearer and external NMS IP domains are separated at the Ethernet interface. The DATA port and bearer VLAN is used for the bearer IP domain, and the MGMT port and external-management VLAN is used for external NMS connectivity. The CSCD port is assigned to the local-management VLAN. (The CSCD port is not applicable for Outdoor BTS).
Unified	When Unified mode is selected, the bearer IP domain and external NMS IP domain are unified on the DATA port, meaning that the same IP address and VLAN are used to connect to the NMS server, AAA server, HA, and BS. (The MGMT port and CSCD port are assigned to the local-management VLAN in this connectivity mode. (The CSCD port is not applicable for Outdoor BTS)

IMPORTANT

A change in Connectivity Mode will take effect after next reset.

6.6.1.2 Site VLAN Configuration

The Site VLAN Configuration section includes the following parameters:

Parameter	Description
Internal Management VLAN ID	Not applicable for Mini-Centralized ASN-GW. The VLAN ID of the internal management interface used for enabling the NMS connectivity between the AU and NPU. This parameter is set to 10 and is not user-configurable.
Local Management VLAN ID	The VLAN ID of the local management interface used for enabling connectivity with the local NMS server that is connected via the MGMT port or CSCD (Cascade) port when operating in the in-band connectivity mode; or via the CSCD port when operating in the out-of-band connectivity mode. This parameter is set to 9 and is not user-configurable. (The CSCD port is not applicable for Outdoor BTS)
Bearer VLAN ID	The VLAN ID of the bearer interface used for enabling bearer IP domain connectivity. When the Unified connectivity mode is selected, the NMS server is also connected using the bearer interface. The available range is 11-100, 110-4094.

Parameter	Description
External Ether Type	Not applicable for a BTS operating in Centralized ASN Topology. The Layer 2 Ether Type configurs the outer VLAN header of uplink Q-in-Q traffic The available values are 8100, 88A8, 9100, 9200.
AU Maintenance VLAN ID	Not applicable for Mini-Centralized ASN-GW. The service interface of the AU is used for uploading maintenance reports to an external server. Most of the service interface parameters except the VLAN ID are configured separately for each AU (see "AU Card Properties Tab" on page 175). The AU maintenance VLAN ID is the VLAN ID used by all AU service interfaces. The available range is 1-9, 11-100, 110-4094.

6.6.1.3 Ethernet Ports

The Ethernet Ports section includes the Ethernet Ports table and the Ethernet Ports Editor section.

The Ethernet Ports table displays the following read-only parameters for each defined port:

Parameter	Description
Port	The Ethernet port name: Backhaul (DATA), Management (MGMT), Cascade (CSCD). The CSCD port is not applicable for Outdoor BTS.
Administrative State	The administrative status of the Ethernet ports (Up or Down).
Operational State	The operational status of the Ethernet ports (Up or Down).

Select a port to display the Ethernet Port Editor for the selected port.

To eliminate the risk of unintentionally loosing management connectivity to the device, the physical parameters of the Backhaul and Management ports cannot be modified (read-only).

The Ethernet Ports Editor section includes the following parameters for the port selected in the Ethernet Ports table:

Parameter	Description
Administrative State	The administrative status of the port (Up or Down).
Negotiation	The mode for negotiating the port speed and the duplex (half or full) status with the link partner. The options are Auto and Manual.

Parameter	Description
Port Speed	The port speed to be used for the physical interface. This parameter is configurable only if the auto-negotiation feature is disabled (Negotiation is set to Manual).. The available option are 10, 100 and 1000 (Mbps).
Duplex Mode	Read-only. The duplex status for the interface (Full-Duplex or Half Duplex).
Encapsulation Mode	Read-only: The encapsulation mode used for the physical interface: Vlan-aware Bridging for the Backhaul port, Transparent Bridging for the Management and Cascade ports.
VLAN Assigned	Read-only. The VLAN ID assigned to the physical interface: Backhaul port: 11 Management and Cascade ports: 9 Note: the Management and Cascade ports operate always in Transparent Bridging encapsulation mode (untagged access mode). The VLAN Assigned indicate the IP interfaces attached to these ports.
VLAN Allowed	Read-only. The IP interface VLAN(s) allowed on the port. Backhaul port: ■ The Bearer VLAN ID ■ The External Management VLAN ID (only in In Band Connectivity Mode) Management port: ■ In Band or Unified Connectivity Mode: The Local Management VLAN ID (9) ■ In Out of Band Connectivity Mode: The External Management VLAN ID Cascade port: The Local Management VLAN ID (9)
Max Frame Size	The maximum frame size (in Bytes), not including the Preamble, that can be accepted on the Ethernet interface. Larger packets will be dropped. For the Backhaul interface the range is 1518-9000 bytes. For other physical interfaces the following values are supported by the hardware: 1518, 1522, 1526, 1536, 1552, 1664, 2048, 9022.

6.6.1.4 Backhaul VLAN Translation

The Backhaul VLAN Translation section includes the following option:

Parameter	Description
Enable VLAN ID Translation	Indicates whether VLAN translation should be enabled or disabled for the Backhaul interface.

The VLAN Translation table lists the VLAN IDs for which translation values have been defined, and the applicable translation values:

Parameter	Description
VLAN ID	The original VLAN ID for which translation is required. Must be a VLAN ID that is allowed on the port:
Change To	The translated VLAN ID (the VLAN ID used in the backbaul network) that is mapped to the original VLAN ID. The range is 11-4094.

The following buttons are available below the table:

Parameter	Description
Add VLAN ID	Adds a new entry to the table, allowing you to configure irs parameters.
Delete	Deletes the selected entry (or several selected entries) from the table.

6.6.2 IP Interface Page

The IP Interface page enables viewing/modifying IP connectivity for IP interface.

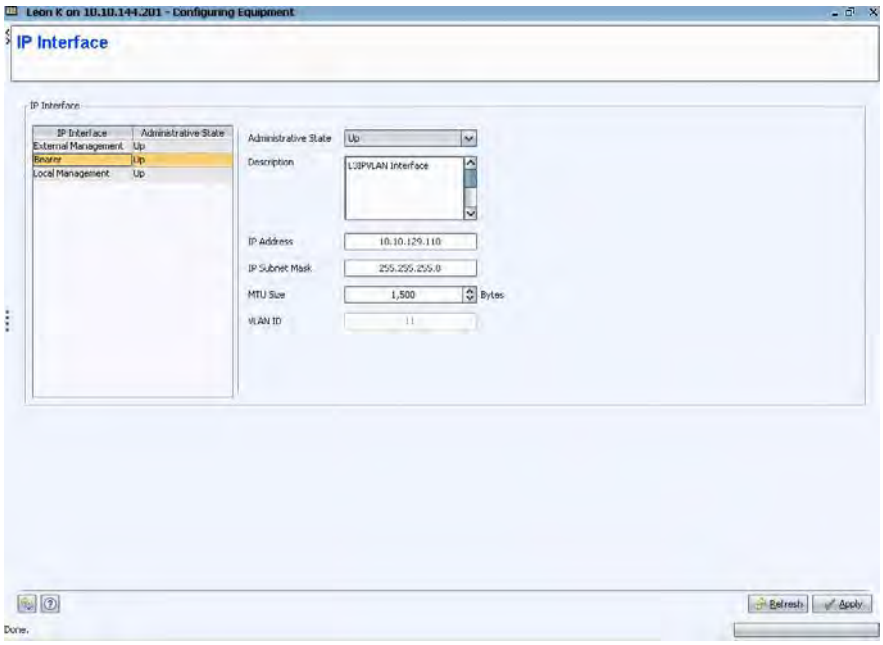


Figure 6-10: IP Interface Page

The IP Interface page includes the IP Interface table and the IP Interface Editor section.

The IP Interface table displays the following read-only parameters for each IP interface:

Parameter	Description
IP Interface	The name of the IP interface: External Management, Bearer, Local Management.
Administrative State	The administrative state of the IP Interface (Up or Down).

The IP Interface Editor section displays the following parameters for the interface selected in the IP Interface table:

Parameter	Description
Administrative State	The administrative state of the interface (Up or Down). Beware from shutting down the interface you use for managing the device.
Description	A brief description of the interface. A string of up to 35 characters.
IP Address	The IP address of the interface.

Parameter	Description
IP Subnet MAsk	The IP subnet mask of the interface.
MTU Size	The MTU size (in bytes) of the interface. The range is from 68 to 1500.
VLAN ID	The VLAN ID of the interface. Note that the VLAN ID of Local Managementcannot be modified. The range is 11-100, 110-4094. Not configurable for the Local Management Interface (set to 9)

NOTE

Applicablity of IP interfaces and the ability to shut down an IP interface depend on the current ASN Topology and NMS Connectivity Mode.

IMPORTANT

The Bearer interface IP address is used also in other interfaces such as the ASN and CSN interfaces. If you change the Bearer interface IP address, you must reboot the NPU to apply changed IP address on these interfaces.

6.6.3 IP Routing Page

The IP Routing page enables viewing/modifying entries in the IP Routing table. It also enables adding/deleting static IP routes.

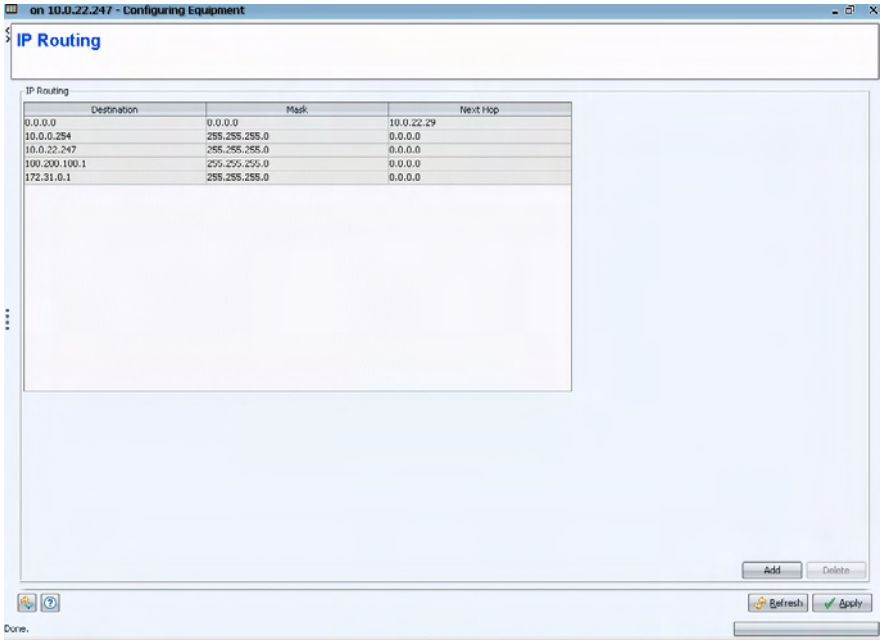


Figure 6-11: IP Routing Page

The IP Routing table includes the following parameters for each static route entry:

Parameter	Description
Destination	The destination host or network IP address for the route.
Mask	The net mask for the route.
Next Hop	The next hop IP address for the route. Must be in the same subnet with one of the NPU IP interfaces.

The IP Routing page also includes the following buttons:

Parameter	Description
Add	Adds a new entry to the IP Routing table, allowing you to configure IRS parameters.
Delete	Deletes the selected entry (or several selected entries) from the IP Routing table.

There are automatically created entries with the IP addresses of the directly connected Bearer, External Management, Local Management and Internal Management interfaces (the IP address of the Internal Management interface is set to 10.0.0.254. This interface is not applicable for the Mini-Centralized ASN-GW). The availability of certain interfaces depend on the connectivity mode. These entries cannot be modified or deleted.

In addition, the default "Any Destination" entry with Destination 0.0.0.0 and Mask 0.0.0.0 may be created. The Next Hop IP address of this route must be in the same subnet with one of the NPU IP interfaces according to specific network topology and needs.

6.6.4 QoS Marking Rules Page

The QoS Marking Rules page enables defining the rules that classify the traffic originating from the NPU into different flows and 802.1p VLAN Priority and/or DSCP values to be applied on traffic that match the criteria defined by the applicable classification rules.

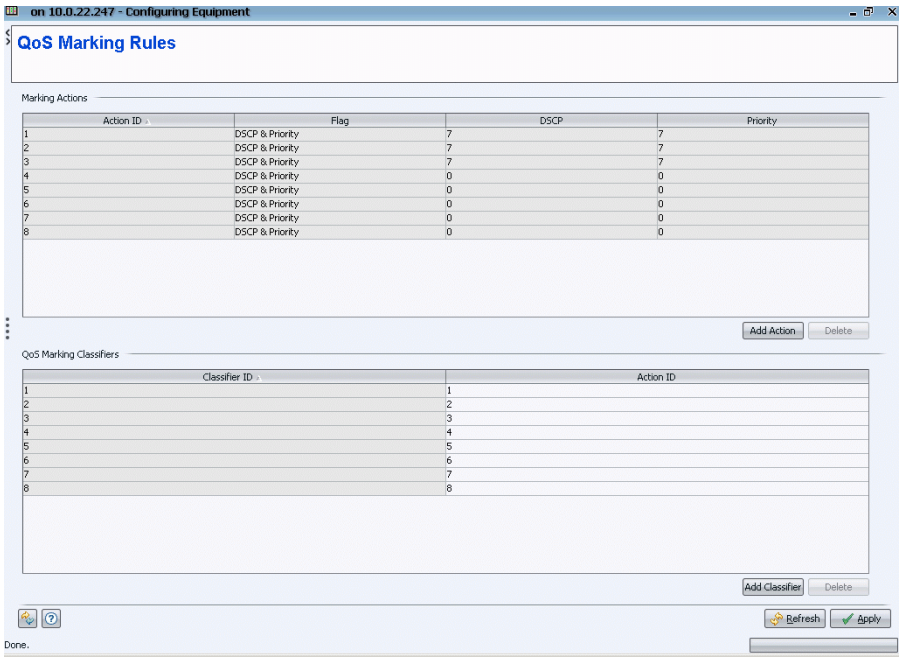


Figure 6-12: QoS Marking Rules Page

The QoS Marking Rules page includes the following sections:

- "Marking Actions"

- "QoS Marking Classifiers"

6.6.4.1 Marking Actions

The Marking Actions table lists the class-maps that define the DSCP and/or VLAN priority bits to be applied for signaling and management traffic originating from the NPU that match relevant criteria.

The Marking Actions table includes the following parameters:

Parameter	Description
Action ID	Read-only. The system-generated auto-sequential ID number.
Flag	Configurable only during creation of a new marking action entry. Defines the type of QoS parameters to be applied appropriate QoS handling of the relevant flow. The option are DSCP, Priority and DSCP & Priority.
DSCP	Configurable only during creation of a new marking action entry. The DSCP value to be applied for this class-map (0-63).
Priority	Configurable only during creation of a new marking action entry. The VLAN priority value to be applied foro this class-map (0-7, where 0 is the lowest and 7 is the highest).

The Marking Actions section also includes the following buttons:

Parameter	Description
Add Action	Adds a new entry to the Marking Actions table.
Delete	Deletes the selected entry (or several selected entries) from the Marking Actions table. An Action ID that is associated to a QoS Marking Classifier cannot be deleted.

By default, Action IDs 1-8 are pre-configured. For more details refer to "ACL Page" on page 151.

6.6.4.2 QoS Marking Classifiers

QoS Marking Classifiers are used to associate Classifier IDs with Action IDs.

The QoS Marking Classifiers table includes the following parameters:

Parameter	Description
Classifier ID	The auto-sequential ID number of the QoS Marking Classifier.

Parameter	Description
Action ID	The action ID number associated to the classifier. Must be one of the Action IDs defined in the Marking Actions table. An Action ID cannot be associated to more than one classifier.

The QoS Marking Classifiers section also includes the following buttons:

Parameter	Description
Add Classifier	Adds a new entry to the QoS Marking Classifiers table.
Delete	Deletes the selected entry (or several selected entries) from the QoS Marking Classifiers table. A Classifier ID referenced in an ACL Rule (see "ACL Parameters Section" on page 156) cannot be deleted.

By default, Classifier IDs 1-8 are pre-configured, associated with Action IDs 1-8, respectively. For more details on the default use of these classifiers refer to "ACL Page" on page 151.

6.6.5 ACL Page

The ACL page enables managing Access Control Lists (ACLs). ACLs are applied on traffic received from the DATA, MGMT or CSCD ports, and destined towards the NPU and (not applicable for Mini-Centralized ASN-GW) the AUs.

By default, all traffic destined towards the AUs or ASN-GW is denied. You can configure ACLs for allowing or dropping traffic destined towards the ASN-GW and/or All AUs that meets certain criteria.

You can create the following types of ACLs:

- Standard (ACL 1-99): Allows you to filter traffic based on the source and destination IP addresses.
- Extended (ACL 100-198): Allows you to filter traffic based on the source and destination IP addresses, source and destination ports, and protocol.
- Extended ACL 199 is used only for QoS Marking rules for classifying traffic originating from the NPU and applying DSCP and/or Priority values for proper QoS handling of traffic that meets certain criteria. It is recommended not to delete this ACL.

By default, ACL 199 includes 8 pre-configured rules, referencing pre-configured classifiers that point to pre-configured actions:

IP Interface (Source IP Address)	Type of Traffic	Protocol	Source Port	Classifier ID	Action ID	DSCP	Priority
Bearer	RADIUS	UDP	1812	1	1	7	7
Bearer	MobileIP - Agent	UDP	434	2	2	7	7
Bearer	WiMAX ASN Control Plane Protocol	UDP	2231	3	3	7	7
Internal Management (not applicable for Mini-Centralized ASN-GW)	OBSAI message exchange between NPU and AU	UDP	10009	4	4	0	0
Internal Management (not applicable for Mini-Centralized ASN-GW)	Trivial File Transfer	UDP	69	5	5	0	0
External Management	Telnet	TCP	23	6	6	0	0
External Management	SSH Remote Login Protocol	TCP	22	7	7	0	0
External Management	SNMP	UDP	161	8	8	0	0

An ACL can be attached to the ASN-GW. In BTS equipment it can also be attached to the AUs or both ASN-GW and AUs (Excluding ACL 199 that cannot be attached to any interface).

You can create the following types of rules for an ACL:

- Allow: Indicates that traffic matching the filter criteria is allowed to reach the ASN-GW and/or AUs.
- Drop: Indicates that traffic matching the filter criteria is dropped, and not allowed to reach the ASN-GW and/or AUs.

You can configure multiple rules for each ACL; the priority for these rules is applied with respect to the sequence in which these rules are configured.

By default, in BTS equipment traffic towards the AUs is not restricted. This is implemented through the pre-configured ACL 1 which is available by default. ACL 1 is attached to All AU, with Rule Action = Allow, Source IP Address = Any and Destination IP Address = Any.

Several additional default ACLs are created automatically to allow some restricted traffic towards the NPU. These ACL rules are applied automatically at the time of NPU startup or upon a change of IP address of various interfaces.

All the following automatically created standard default ACLs are attached to the NPU virtual interface and include a single Permit rule:

Table 6-1: Default Standard ACLs

ACL Number	Rule Action	Source IP Address	Destination IP Address
ACL 96 (not applicable for Mini-Centralized ASN-GW)	Allow	Any	Internal Management IP address
ACL 97	Allow	Any	External Management IP address
ACL 98	Allow	Any	Local Management IP address

The default Extended ACL 186 attached to the NPU virtual interface includes the following Allow rules allowing certain traffic towards the Bearer interface:

Table 6-2: Rules of Default ACL 186

Rule Action	Source IP Address	Source Port	Destination IP Address	Destination Port	Protocol
Allow	Any	Any	Bearer IP address	Any	ICMP (1)
Allow	Any	Any	Bearer IP address	2231 (used for WiMAX ASN Control Plane Protocol)	UDP (17)
Allow	Any	Any	Bearer IP address	1812-1813 (used for RADIUS Authentication and Accounting)	UDP (17)

Table 6-2: Rules of Default ACL 186

Rule Action	Source IP Address	Source Port	Destination IP Address	Destination Port	Protocol
Allow	Any	Any	Bearer IP address	69 (used for TFTP)	UDP (17)
Allow	Any	Any	Bearer IP address	1022-1023 (used for software download)	UDP (17)

Additional Extended ACLs are created automatically for every Service Group that is associated with a VLAN Service Interface and an enabled VLAN Service. Up to 10 ACLs, numbered ACL 187 to ACL 196, can be created, These automatically created/deleted ACLs allow Ping and DHCP traffic on the DHCP Own IP Address interface of the applicable VLAN service:

Table 6-3: Rules of Default VLAN Service Interfaces ACL 187-196

Rule Action	Source IP Address	Source Port	Destination IP Address	Destination Port	Protocol
Allow	Any	Any	DHCP Own IP Afddress defined for the applicable Service Group	Any	ICMP (1)
Allow	Any	Any	DHCP Own IP Address defined for the applicable Service Group	67-68 (used for DHCP traffic)	UDP (17)

IMPORTANT

The default pre-configured and automatically created ACLs cannot be deleted and should not be modified.

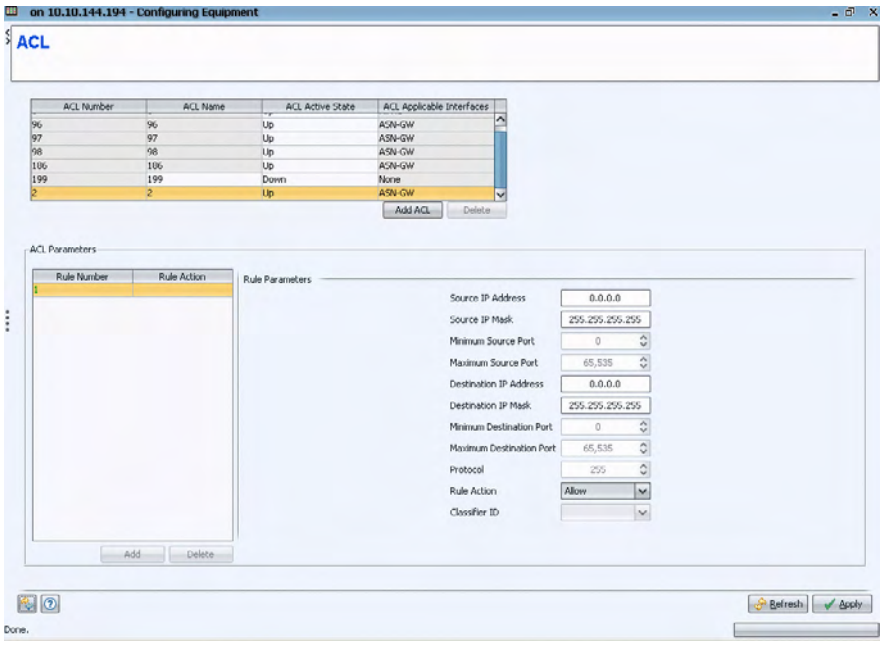


Figure 6-13: ACL Page

The ACL page includes the following sections:

- "ACL Table"
- "ACL Parameters Section"

6.6.5.1 ACL Table

The ACL table includes the following parameters for each ACL:

Parameter	Description
ACL Number	The ACL number. ACL 1-99 are Standard ACLs. ACL 100-198 are Extended ACLs. ACL 199 is the default extended ACL that is pre-configured in the system, and is not attached to any interface. ACL 199 is reserved for QoS marking rules. You cannot configure Allow/Deny rules for ACL 199.
ACL Name	The name of the ACL. The default name is the ACL Number.

Parameter	Description
ACL Active State	The state of the ACL (Up or Down). A new ACL can be created only with Active State Down. Rule's parameters can be modified only if the state of the ACL is Down. If ACL Applicable Interface is None, its state cannot be set to Up.
ACL Applicable Interface	The interface(s) to which the ACL applies: None, ASN-GW, All AU, ASN-GW & All AU. In Mini-Centralized ASN-GW only the None and ASN-GW are applicable.

The ACL table section also includes the following buttons:

Parameter	Description
Add ACL	Adds a new ACL entry to the table.
Delete	Deletes the selected entry (or several selected entries) from the table. An ACL with Active State UP cannot be deleted.

6.6.5.2 ACL Parameters Section

The ACL Parameters section includes the ACL Parameters table and the ACL Parameters Editor. After you have created an ACL, you can configure Allow/Deny rules to be applied for traffic that meets certain criteria.

The ACL Parameters table displays the following read-only parameters for each existing ACL rule:

Parameter	Description
Rule Number	The ACL rule number. An auto-sequential number generated during creation of a new rule.
Rule Action	The rule action (Allow or Deny). Allow indicates that traffic matching the filter criteria is allowed to reach the ASN-GW and/or or AUs. Deny indicates that traffic matching the filter criteria is dropped, and not allowed to reach the ASN-GW or AUs.

Select an entry to open the Rule Parameters Editor for the selected rule.

The ACL Parameters table also includes the following buttons:

Parameter	Description
Add	Adds a new entry to the table and opens the Rule Parameters Editor, enabling configuration of parameters for the new rule. Rules can be added only if the Active State of the ACL is Up.
Delete	Deletes the selected entry (or several selected entries) from the table. Rules can be deleted only if the Active State of the ACL is Down.

The ACL Parameters Editor displays the following parameters for the rule selected in the ACL Parameters table:

Parameter	Description
Source IP Address	The source IP address to allow/deny traffic from. The address 0.0.0.0 means any address. In ACL 199 rules must be the IP address of the Bearer or External Management or Internal Management interface.
Source IP Mask	Not applicable for ACL 199. The mask for the source IP address, allowing to define a range of source addresses (subnet) from which to allow/deny traffic.
Minimum Source Port	Applicable only for an extended ACL.The minimum source port number of the application traffic from which to allow/deny traffic.The range is 1-65535.
Maximum Source Port	Applicable only for an extended ACL. Not applicable for ACL 199. The maximum source port number of the application traffic from which to allow/deny traffic.The range is 1-65535.
Destination IP Address	Not applicable for ACL 199. The destination IP address to which to allow/deny traffic.The address 0.0.0.0 means any address.
Destination IP Mask	Not applicable for ACL 199. The mask for the destination IP address, allowing to define a range of source addresses (subnet) to which to allow/deny traffic.
Minimum Destination Port	Applicable only for an extended ACL.Not applicable for ACL 199. The minimum destination port to which to allow/deny traffic.The range is 1-65535.
Maximum Destination Port	Applicable only for an extended ACL.Not applicable for ACL 199. The maximum destination port to which to allow/deny traffic.The range is 1-65535.
Protocol	Applicable only for an extended ACL. The transport protocol for which traffic is allowed/denied.The range is 1-255. In ACL 199 the valid values are 6 (TCP) and 17 (UDP).
Rule Action	The rule action (Allow or Drop). Not applicable for ACL 199 where it is read-only, displaying QoS Mark.

Parameter	Description
Classifier ID	Applicable only for ACL 199. The marking classifier ID to be used for associating an action ID that defines the DSCP and/ot Priority marking actions to be applied to traffic that meets the rule's parameters. A classifier ID cannot be associated with more than one rule. Refer to "QoS Marking Rules Page" on page 149 for details on configuring marking classifiers and marking actions.

For each Standard ACL, a specific combination of all applicable parameters (Source IP Address, Source IP Mask, Destination IP Address, Destination IP Mask) cannot be defined in more than one rule.

For each Extended ACL, a specific combination of all applicable parameters (Source IP Address, Source IP Mask, Destination IP Address, Destination IP Mask, Minimum Source Port, maximum Source Port, Minimum Destination Port, Maximum Destination Port, Protocol) cannot be defined in more than one rule.

6.7 Management Page

The Management page comprises two tabs:

- "Managers List Tab"
- "Performance Tab"
- "Logging Tab"

6.7.1 Managers List Tab

The Managers List tab enables managing the lists of Authorized SNMP Managers and SNMP Trap Managers.

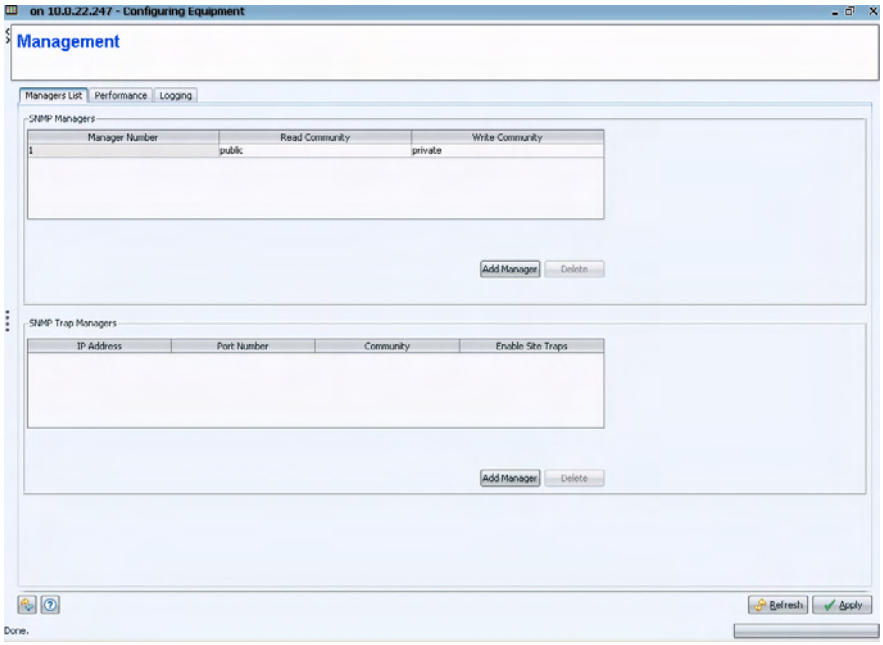


Figure 6-14: Management Page - Managers List Tab

The Managers List tab includes the following sections:

- "SNMP Managers"
- "SNMP Trap Managers"

6.7.1.1 SNMP Managers

An SNMP Manager comprises a pair of SNMP Communities (Read Community and Write Community). A management station is permitted to manage the BTS using SNMP only if it uses one of the configured SNMP Communities (or a pair of SNMP Communities). A maximum of five SNMP Managers can be configured. If the maximum number is reached, the Add Manager button becomes inactive.

The SNMP Managers table includes the following fields for each authorized SNMP Manager:

Parameter	Description
Manager Number	The index number of the SNMP Manager.
Read Community	The SNMP Read Community string allowing execution of SNMP Get operations. A string of up to 10 printable characters, case-sensitive.
Write Community	The SNMP Write Community string allowing execution of SNMP Set and Get operations. A string of up to 10 printable characters, case-sensitive.

The SNMP Managers section also includes the following buttons:

Parameter	Description
Add Manager	Adds a new entry to the SNMP Managers table.
Delete	Deletes one or several selected entries from the SNMP Managers table.

NOTE

The Read and Write Communities are mandatory and both must be defined (other than null). Duplication of Communities pairs is not allowed (each pair must be unique).

IMPORTANT

If you delete all SNMP Managers you will loose the ability to manage the site using SNMP.

6.7.1.2 SNMP Trap Managers

A maximum of five SNMP Trap Managers can be configured. If the maximum number is reached, the Add Manager button becomes inactive.

IMPORTANT

For proper management of the site such as getting notifications on configuration change events the network management server must be defined as a Trap Manager.

The SNMP Trap Managers table includes the following fields for each authorized SNMP Trap Manager:

Parameter	Description
IP Address	The IP address of the Trap Manager. Must be unique in the network (the same IP address cannot be assigned to more than one Trap Manager).I
Port Number	The port number on which the Trap Manager will listen for messages from the Agent. The range is from 1 to 65535. The port on which the management system listens for traps is 162.
Community	The name of the SNMP Read Community used by the Trap Manager. Traps are sent toward those Managers for which this parameter is configured. A string of up to 10 printable characters, case-sensitive.
Enable Site Traps	Indicates whether the sending of traps to the management station is enabled or disabled.

The SNMP Trap Managers section also includes the following buttons:

Parameter	Description
Add Manager	Adds a new entry to the SNMP Trap Managers table.
Delete	Deletes one or several selected entries from the SNMP Trap Managers table.

6.7.2 Performance Tab

The Performance tab allows enabling/disabling collection and storage of performance data.

For details on collection and storage of counters, supported counters groups and the counters in each group, refer to the Performance Management document.

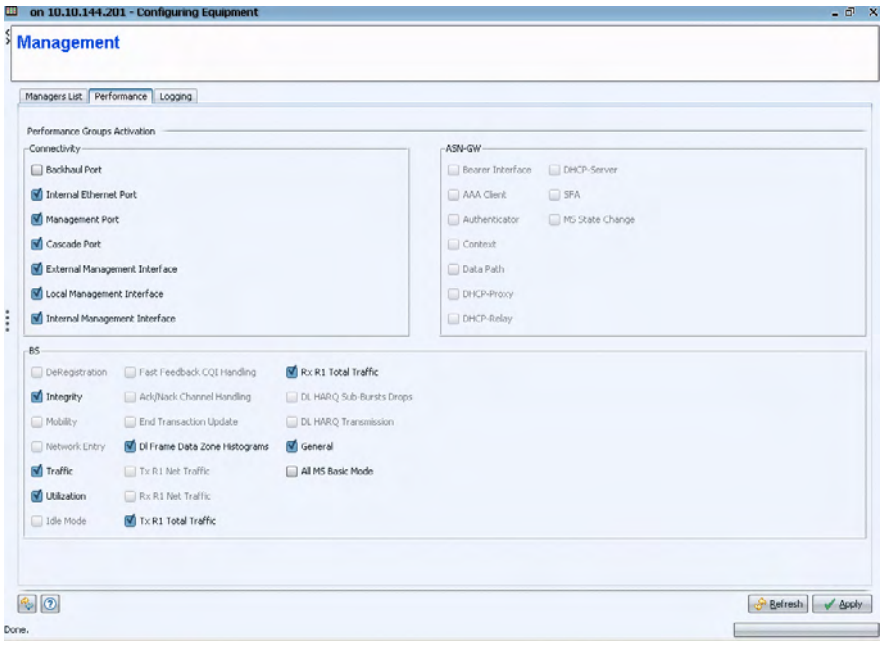


Figure 6-15: Management Page - Performance Tab

The Performance page includes the following components:

Parameter	Description
Performance Group Activation	A list of counters groups as detailed below with a check box next to each group's name. Select a check box to enable collection and storage of performance data for the counters group.

NOTE

Certain counters groups are not fully supported in the current release. Collection of these counter groups cannot be enabled.

For the Mini-Centralized ASN-GW, only the InOctets and OutOctets counters of the Backhaul Port, Cascade Port, External Management Interface and Bearer Interface, indicating the total number of bytes received or transmitted on the relevant interface, are fully supported in the current release. Do not use any other counter as its value may be wrong.

The counters groups includes:

- **Connectivity**:
  - Backhaul Port
  - Management Port

- Cascade Port
- Internal Ethernet Port (collected per AU, not applicable for Mini-Centralized ASN-GW)
- Internal Management Interface (not applicable for Mini-Centralized ASN-GW)
- External Management Interface
- Local Management Interface

- **ASN-GW** (for BTS equipment applicable only in Distributed ASN-GW mode):
  - Bearer Interface
  - AAA Client
  - Authenticator
  - Context
  - DataPath
  - DHCP-Proxy
  - DHCP-Relay
  - DHCP-Server
  - SFA
  - MS State Change

- **BS** (collected per BS, not applicable for Mini-Centralized ASN-GW):
  - DeRegistration
  - Integrity
  - Mobility
  - Network Entry
  - Traffic
  - Utilization
  - Idle Mode
  - Fast Feedback CQI Handling
  - Ack/Nack Channel Handling
  - End Transaction Update
  - DL Frame Data Zone Histograms
  - Tx R1 Net Traffic
  - Rx R1 Net Traffic
  - Tx R1 Total Traffic
  - Rx R1 Total Traffic
  - DL HARQ Sub-Bursts Drop
  - DL HARQ Transmission
  - General
  - All MS Basic Mode (collected per MS)

6.7.3 Logging Tab

The Logging tab enables defining various logging parameters, including the minimum severity level for which an event generates a log entry.

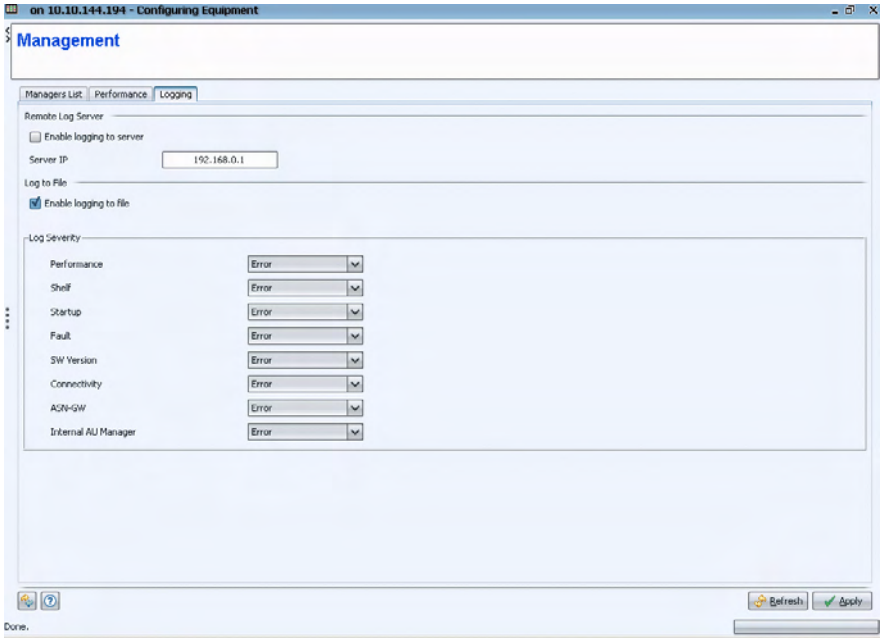


Figure 6-16: Management Page - Logging Tab

The Logging tab includes the following parameters:

Parameter	Description
Remote Log Server	
Enable logging to server	Indicates whether or not logging to the server is enabled. If enabled, the server IP address is indicated in the Server IP text box.
Server IP	The server IP address of the server on which logs are to be maintained. If logging to server is enabled, the Server IP cannot be changed.
Log to File	
Enable logging to file	Indicates whether or not logging to file is enabled.

In addition, in the Logging Severity section, you can disable logging to file or set the minimum severity level that generates a log entry for each of the following types of events:

Parameter	Description
Performance	Performance management procedures.
Shelf	Shelf management procedures.
Startup	System startup procedures.
Fault	Fault management procedures.
SW Version	Software upgrade procedures.
Connectivity	Connectivity procedures.
ASN-GW	ASN-GW procedures (applicable only in Distributed ASN-GW mode).
Internal AU Manager	Internal processes used for managing the AUs (not applicable for Mini-Centralized ASN-GW).

6.8 Equipment

The Equipment node includes two sub-nodes:

- "Shelf"
- "External (not applicable for Mini-Centralized ASN-GW)"

6.8.1 Shelf

The Shelf sub-node enables access to the following pages:

- "Power Supply Page (applicable only for Indoor BTS)"
- "NPU Page"
- AU Node, with "AU Slot # Page (not applicable for Mini-Centralized ASN-GW)" for each of the existing (created) AU entities.

In addition, from the navigation tree of a managed BTS you can create new AU entities or delete an existing AU entity (refer to Section 6.8.1.3).

6.8.1.1 Power Supply Page (applicable only for Indoor BTS)

The Power Supply page enables viewing/defining the properties of required PIU and PSU cards and viewing the properties of installed cards.

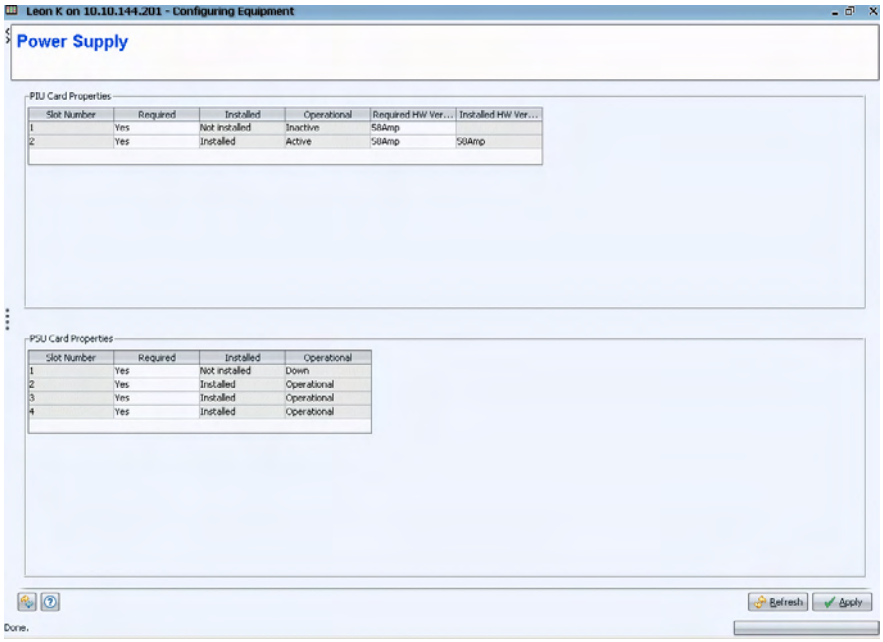


Figure 6-17: Power Supply Page

The Power Supply page includes the following sections:

- "PIU Card Properties"
- "PSU Card Properties"

6.8.1.1.1 PIU Card Properties

The PIU Card Properties table includes the following parameters for each PIU card slot:

Parameter	Description
Slot Number	Read-only. The number of the slot allocated to the PIU card (1-2).
Required	Indicates whether the PIU card is required in the specific slot. Double-click on the entry to open a selection drop-down menu displaying the available options (Yes/No).
Installed	Read-only. The status of the PIU card installation (Installed or Not installed).

Parameter	Description
Operational	Read-only. The operational status of the PIU card (Active or Inactive).
Required HW Version	The required current supply capability of the card. Double-click on the entry to open a selection drop-down menu displaying the available options (58Amp, 35Amp).
Installed HW Version	Read-only. The current supply capability of the installed card (empty for a PIU that is not installed).

6.8.1.1.2 PSU Card Properties

The PSU Card Properties table includes the following parameters for each PSU card slot:

Parameter	Description
Slot Number	Read-only. The number of slot allocated to the PSU card (1-4).
Required	Indicates whether the PSU card is required in the specified slot. Double-click on the entry to open a selection drop-down menu displaying the available options (Yes/No).
Installed	Read-only. The status of the PSU card installation (Installed or Not installed).
Operational	Read-only. The operational status of the PSU card (Operational or Down).

6.8.1.2 NPU Page

The NPU Page displays the properties of the NPU card and enables control of the card and configuration of the time for automatic scheduling of the configuration backup.

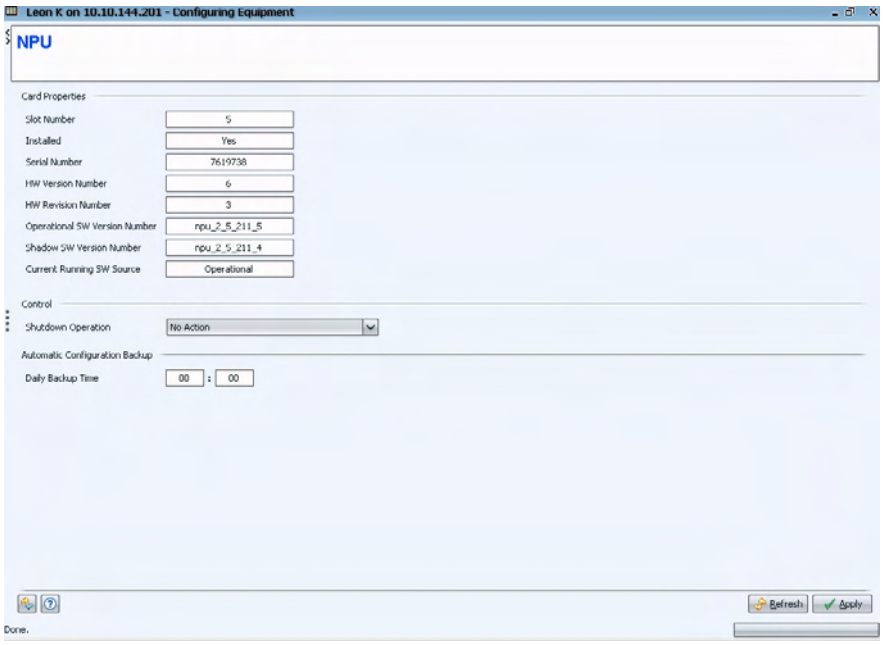


Figure 6-18: NPU Page

The NPU page includes the following:

- "Card Properties"
- "Control"
- "Automatic Configuration Backup"

6.8.1.2.1 Card Properties

The Card Properties section includes the following read-only parameters of the NPU card.

Parameter	Description
Slot Number	The number of the slot allocated to the NPU card. In current release the NPU can be installed only in slot 5.
Installed	The status of the NPU card installation. Must be Yes.
Serial Number	The serial number of the NPU card.
HW Version Number	The hardware version of the NPU card.
HW Revision Number	The hardware revision number.

Parameter	Description
Operational SW Version Number	The version of the default software image used for rebooting the NPU after system reset.
Shadow SW Version Number	The version of the downloaded software image that can be used to boot up the NPU.
Current Running SW Source	The software that is currently running on the system (Operational or Shadow).

Refer to "Software Upgrade Task" on page 288 for details on loading a new SW version and managing the SW versions.

6.8.1.2.2 Control

The Control section enables defining the action to be taken for a Shutdown or Reset Operation:

Option	Description
Shutdown	The shutdown operation will shut down the entire site. **IMPORTANT:** The system cannot be re-activated from remote. To re-activate the system, turn off the power to the PIU(s) and then turn it on again.
Reset	The site will be restarted. All changes in parameters that require reset will take effect after restart.
Reset To Factory	The system will be restarted with factory default configuration. **IMPORTANT:** All configurations will be deleted. This also means loosing the ability to manage the unit from remote: Local configuration of specific mandatory parameters using CLI is required to enable remote management of the site using the management system. Refer to the "Enabling Discovery" on page 1 for details.

Option	Description
Reset To Factory With Connectivity	The system will be restarted with factory default configuration, except to parameters that are required to maintain management connectivity to the unit. The parameters that are maintained without any change include: ■ Physical interfaces (MGMT, CSCD, DATA) configurations ■ IP interfaces (local management, external management, bearer) configurations ■ IP route configurations ■ SNMP Managers configurations ■ Trap Managers configurations ■ AU software mapping (not applicable for Mini-Centralized ASN-GW) ■ Site ID
No Action	The default option-no reset or shutdown operation.

6.8.1.2.3 Automatic Configuration Backup

The daily scheduled time for the automatic configuration backup is indicated in the Daily Backup Time text boxes in the Automatic Configuration Backup section.

The format is hh:mm where hh = 00 to 23, mm = 00 to 59.

6.8.1.3 Creating/Deleting an AU (not applicable for Mini-Centralized ASN-GW)

To create a new AU:

1 Right-click the AU sub-node in the navigation tree and select Create to open the New AU window. You can also double-click on an empty slot in the Site Equipment View Page (see "Chassis View (Indoor BTS)" on page 125) to open the New AU window for the selected slot.

See table below for mapping of Outdoor Macro BTS AUs to slot numbers:

Table 6-4: Mapping of Outdoor Macro BTS AUs to Slot #

AU	Slot #
AU of NAU	7

Table 6-4: Mapping of Outdoor Macro BTS AUs to Slot #

AU	Slot #
SAU	1
Master AU of DAU 1 (left side of DAU 1)	2
Slave AU of DAU 1 (right side of DAU 1)	3
Master AU of DAU 2 (left side of DAU 2)	8
Slave AU of DAU 2 (right side of DAU 2)	9

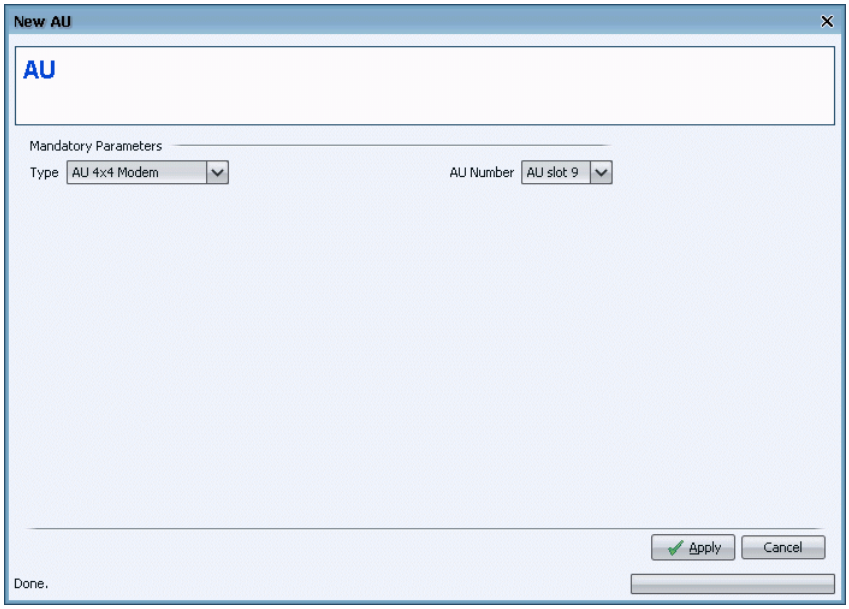


Figure 6-19: New AU Window

2 Configure the mandatory properties of the required AU in the New AU window:

Parameter	Description
Type	The required AU type: In the current release only AU 4x4 Modem is applicable.
AU Number	Select the required slot number. The available options include all currently "empty" slots (AU entity does not exist). The AU Number is read-only if the New AU window was opened by double-clicking on an empty slot in the Site Equipment View page.

3 Click Apply to complete the new AU creation. The new AU will be added to the list of AU Slot # available in the AU sub-node.

To delete an AU:

To delete an AU, right-click the required AU Slot # entry in the navigation tree and select Delete. You will be request to confirm the operation.

IMPORTANT

An associated AU (specified in a Site Sector Association) cannot be deleted. For more details refer to "Site Sector # Page" on page 263.

6.8.1.4 AU Slot # Page (not applicable for Mini-Centralized ASN-GW)

The AU node includes an AU slot # page for each created AU.

For details on creation/deletion of AU entities refer to "Creating/Deleting an AU (not applicable for Mini-Centralized ASN-GW)" on page 172.

The AU Slot # Page displays the properties of the respective AU card.

The AU Slot # page includes the following tabs:

- "AU Card Properties Tab"
- "AU Control Tab"

6.8.1.4.1 AU Card Properties Tab

The Card Properties tab displays configuration and status information for the AU card in the designated slot.

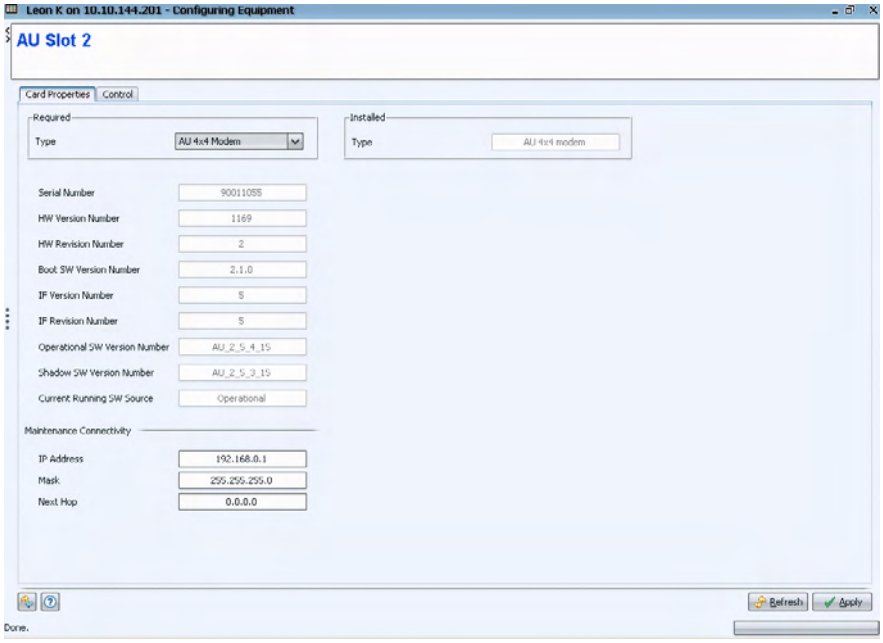


Figure 6-20: AU Slot # Page - Card Properties Tab

The Required section enables viewing/editing the required properties of the AU card that should be installed in the slot:

Parameter	Description
Type	The required AU type: In the current release only AU 4x4 Modem is applicable..

The Installed section displays read-only information about the actual properties of the Installed card (or AU not detected):

Parameter	Description
Type	The AU type (AU 4x4 Modem or AU not detected).

In addition, the following read-only AU card parameters are displayed in the Card Properties tab:

Parameter	Description
Serial Number	The serial number of the AU card.
HW Version Number	The hardware version of the AU card.
HW Revision Number	The hardware revision number.
Boot SW Version Number	The boot software version.
IF Version Number	The IF version number.
IF Revision Number	The IF revision number.
Operational SW Version Number	The version of the default software image used for rebooting the AU after system reset.
Shadow SW Version Number	The version of the downloaded software image that can be used to boot up the AU.
Current Running SW source	The software that is currently running on the card (operational or shadow).

Refer to "Software Upgrade Task" on page 288 for details on loading a new SW version and managing the SW versions.

The Maintenance Connectivity section enables viewing/configuring the parameters of the service interface (excluding the VLAN ID) used by the AU for uploading maintenance information to an external server (the same VLAN ID is used by all service interfaces - for details see "Site VLAN Configuration" on page 142).

The Maintenance Connectivity section includes the following parameters:

Parameter	Description
IP Address	The IP address of the service interface. Must be unique in the network.
Mask	The subnet mask of the service interface.
Next Hop	The default gateway IP address of the service interface.

6.8.1.4.2 AU Control Tab

The Control tab lists the parameters that enable controlling operation of the AU.

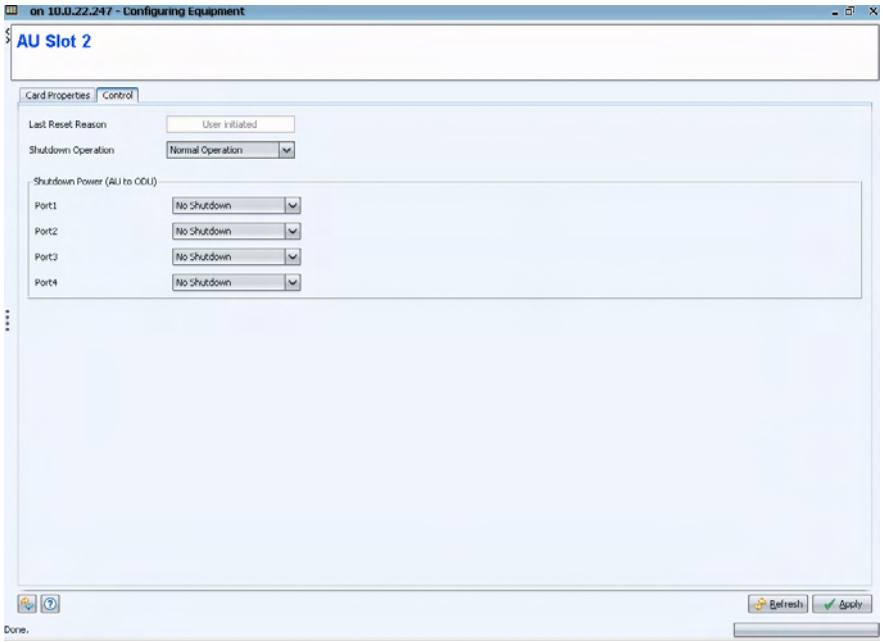


Figure 6-21: AU Slot Page - Control Tab

The Control tab includes the following options:

Parameter	Description
Last Reset Reason	Read-only. The reason for the last reset of the AU. Possible reasons include Unknown, Health Monitoring Failed, User Initiated. Configuration Failure, Internal Errors.
Shutdown Operation	The type of operation to be performed: Normal Operation, Shutdown [disable power to card] or Reset.

The **Shutdown Power (AU to ODU)** section enables control of the power from each port. The available options for each of the 4 ports are Shutdown or No Shutdown (normal operation).

6.8.2 External (not applicable for Mini-Centralized ASN-GW)

The Equipment node includes the following pages:

- ODU Node, with "ODU # Page" for each of the existing (created) ODU entities.

- "GPS Page"
- "Power Feeder Page (applicable only for Indoor BTS)"
- "Antenna Page"

In addition, from the navigation tree you can create new ODU entities or delete an existing ODU entity:

6.8.2.1 Creating/Deleting an ODU

To create a new ODU:

1 Right-click the ODU sub-node in the navigation tree and select Create to open the New ODU window.

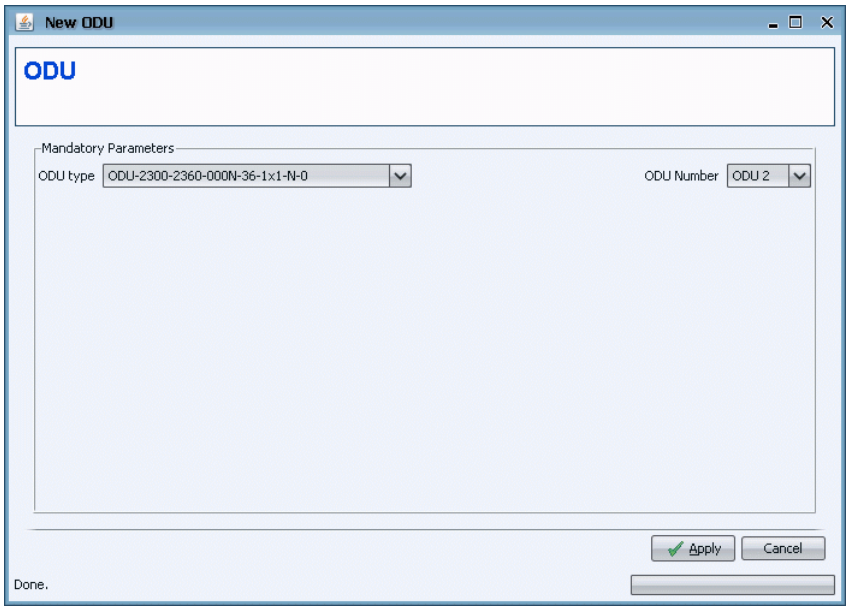


Figure 6-22: New ODU Window

2 In the New ODU window, select the required ODU Type and the ODU Number to be assigned to it (only unassigned numbers are available for selection). . For Indoor BTS ODU numbers range is 1 to 28. For an Outdoor BTS ODU number range is from 1 to 24.

3 Click Apply to complete the new ODU creation. The new ODU will be added to the list of ODU # available in the ODU sub-node. To fully complete the creation of the ODU you should update the Ports Configuration (if necessary) and click Apply in the ODU page (see "ODU # Page" on page 179).

To delete an ODU:

To delete an ODU, right-click the required ODU # entry in the navigation tree and select Delete. You will be request to confirm the operation.

IMPORTANT

An associated ODU (specified in a Site Sector Association) cannot be deleted. For more details refer to "Site Sector # Page" on page 263.

6.8.2.2 ODU # Page

The ODU node includes an ODU # page for each created ODU.

The ODU # page displays the properties of the respective ODU.

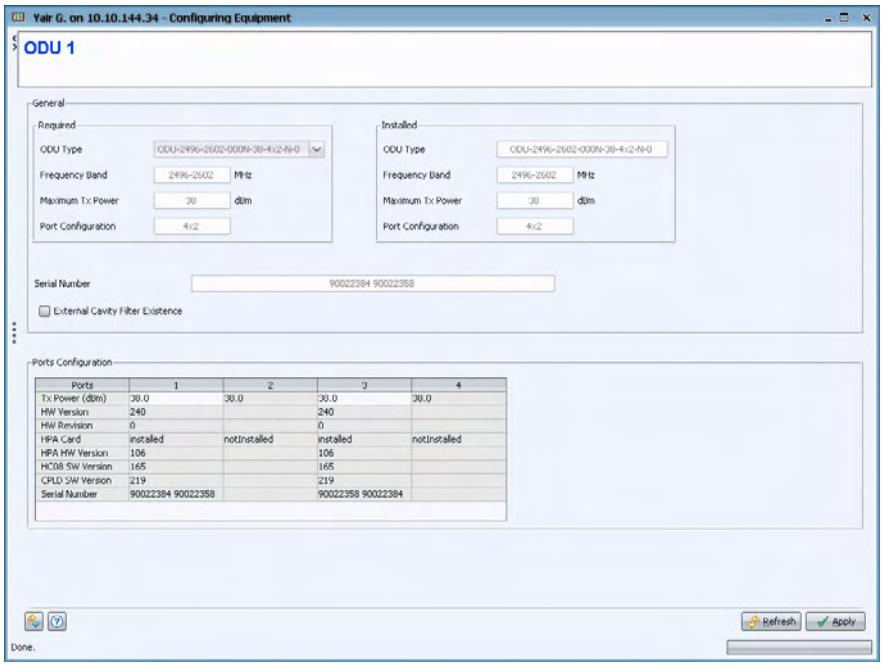


Figure 6-23: ODU Page

The ODU # page includes the following sections:

- "General"
- "Ports Configuration"

6.8.2.2.1 General

The General section is divided into sub-sections.

The Required section enables viewing/editing the required Type of the ODU. It also provide read-only properties of the ODU based on the required type:

Parameter	Description
Type	The required ODU type. The Type of an associated ODU cannot be editted. The Type of an ODU that is not associated to any sector can be updated. Refer to "Creating/Deleting an ODU" on page 178 for a list of currently available ODU Types.
Frequency Band	Read-only. The frequency band supported by the required ODU Type, in MHz..
Maximum Tx Power	Read-only. The maximum Tx power available for the required ODU Type, in dBm.
Port Configuration	Read-only. The Port Configuration of the required ODU Type (1x1 or 4x2).

The Installed section displays read-only information about the actual Type and the properties of the actual ODU Type. These details are available only for an existing and connected ODU that is associated to a sector:

Parameter	Description
Type	The installed ODU type (or ODU not Associated to sector).
Frequency Band	The frequency band supported by the installed ODU Type, in MHz..
Maximum Tx Power	The maximum Tx power available for the installed ODU Type, in dBm.
Port Configuration	The Port Configuration of the installed ODU Type (1x1 or 4x2).

In addition, the following ODU general properties are displayed below the Required and Installed sections:

Parameter	Description
Serial Number	Read-only. The serial number of the ODU enclosure.

Parameter	Description
External Cavity Filter Existence	Check to indicate the existence of an external cavity filter.

6.8.2.2.2 Ports Configuration

The Ports Configuration table includes the following parameters for each ODU port:

Parameter	Description
Tx Power (dBm)	The required Tx power at the specified ODU Port, in dBm. Applicable only for Tx/Rx ports: Port 1 in a 1x1 ODU, Ports 1 and 3 in a 4x2 ODU. In other (Rx) ports this parameter is set to 0.0 and is read-only. The actually available range depends on ODU Type: The upper limit is set by the Maximum Tx Power supported by the ODU. The control range for all ODUs is 10dBm, except to the 1x1 ODUs in the 2.3 and 2.5 GHz bands whose control range is 6dBm. This includes: ODU-2300-2360-000N-36-1x1-N-0, ODU-2496-2602-000N-36-1x1-N-0, ODU-2590-2690-000N-36-1x1-N-0
HW version	The hardware version of the ODU card connected to this port.
HW revision	The hardware revision of the ODU card connected to this port.
HPA Card	Indicates whether the port is connected to an HPA card (installed/not installed).
HPA HW Version	The hardware version of the HPA connected to this port (relevant only if an HPA card is installed).
HC08 SW Version	The software version of the HCO8 controlling card connected to this port.
CPLD SW Version	The software version of the CPLD controlling card connected to this port.
Serial Number	The serial number of the ODU card connected to this port.

6.8.2.3 GPS Page

The GPS page enables defining the GPS receiver configuration and time synchronization settings.

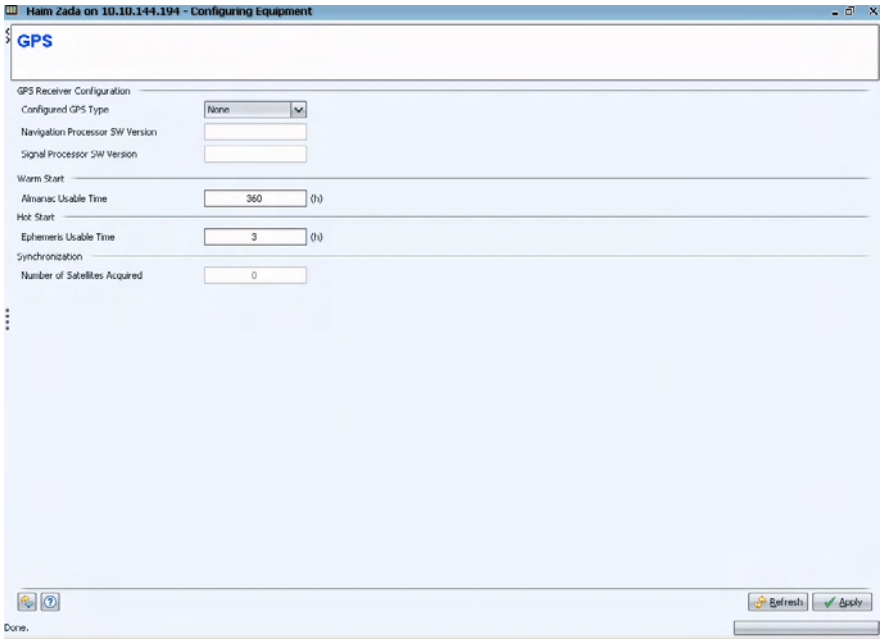


Figure 6-24: GPS Page

The GPS page includes the following parameters:

Parameter	Description
GPS Receiver Configuration	
Configured GPS Type	The type of GPS to be connected to the BTS. The currently available options are Trimble or None.
Navigation Processor SW Version	Read-only. The software version of the navigation processor of the GPS receiver.
Signal Processor SW Version	Read-only. The software version of the signal processor of the GPS receiver.
Warm Start	
Almanac Usable Time	The maximum period, in hours, for which the Almanac time is valid when the GPS is reset. The range is from 0 to 4320.
Hot Start	
Ephemeris Usable Time	The maximum period, in hours, for which the Ephemeris time is valid when the GPS is reset. The range is from 0 to 168.

Parameter	Description
Synchronization	
Number of Satellites acquired	Read-only. The number of satellites currently acquired by the GPS.

6.8.2.4 Power Feeder Page (applicable only for Indoor BTS)

The PIU can support a maximum current of 58 A (@-40.5 VDC). In certain installations with a relatively high number of ODUs this current may not be sufficient to power the shelf and all the ODUs. In such installations the ODU Power Feeder is used as an additional power source providing power (-48 VDC) to ODUs. It transfers transparently all signals between the AU and the ODU, while injecting DC power received from an external source. Each ODU Power Feeder unit can serve up to four ODUs.

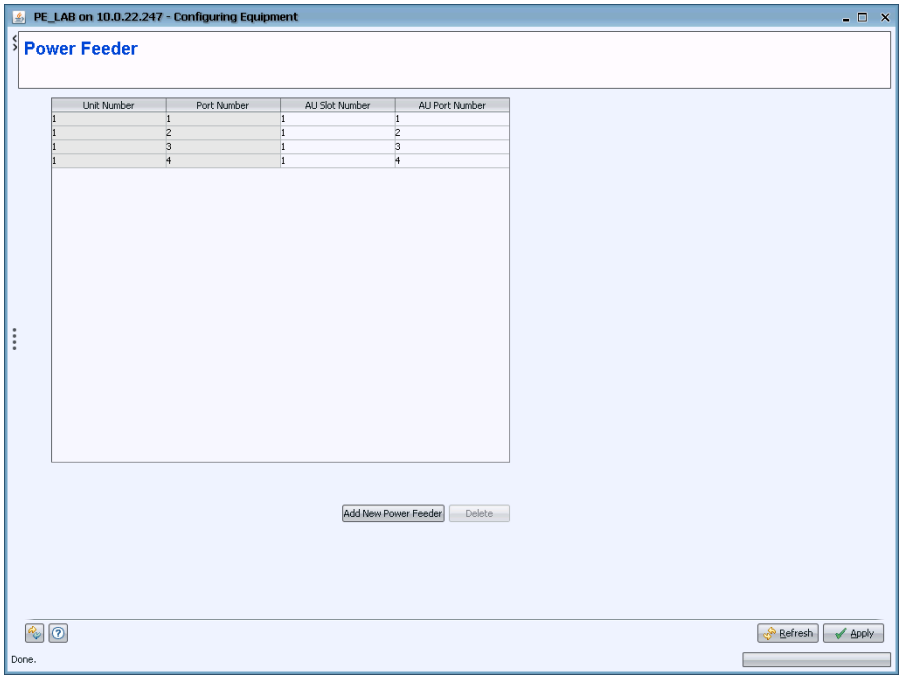


Figure 6-25: Power Feeder Page

The Power Feeder table includes the following parameters:

Parameter	Description
Unit Number	Read-only. The Power Feeder Unit Number (1-4)
Port Number	Read-only. The Power Feeder Port Number (1-4)

Parameter	Description
AU Slot Number	The Slot Number of the AU to which the Power Feeder Port is connected: 1-4, 7-9, or None.
AU Port Number	The AU Port Number to which the Power Feeder Port is connected:1-4, or None..

In addition, the page includes the following buttons:

Parameter	Description
Add Power Feeder	Adds a new Power Feeder to the table. Up to 4 Power Feedes may be configured. Each Power Feeder includes 4 entries for Port Number 1 to 4. Note that each combination of AU Slot Number and AU Port Number cannot appear in more than one entry (excluding combinations with None value).
Delete	Deletes the selected Power Feeder from the table. You must select all 4 entries of a Power Feeder to delete it.

6.8.2.5 Antenna Page

The Antenna page enables defining the properties of the site's antennas.

The Antenna page comprises two sections: The Antennas List and the Antennas Parameter Editor section.

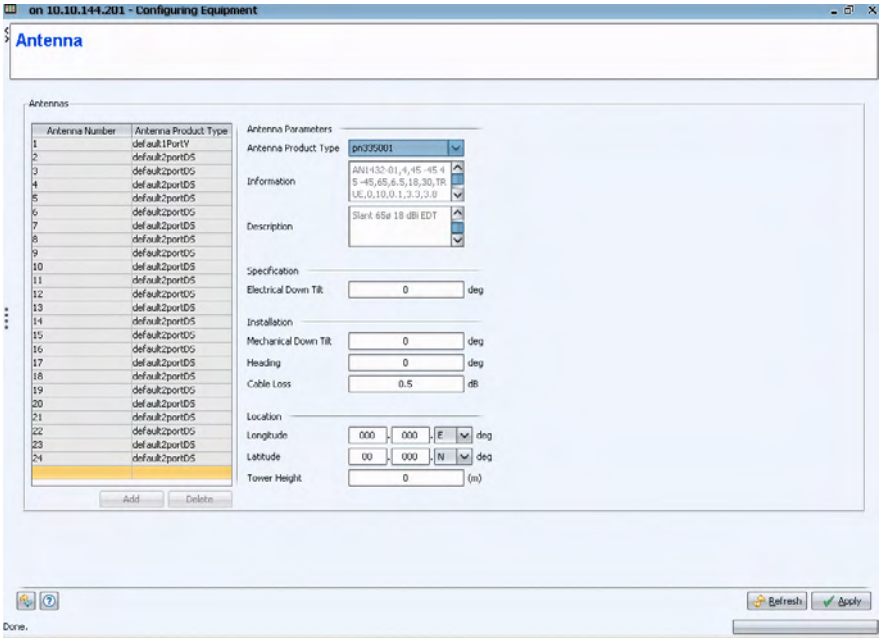


Figure 6-26: Antenna Page

The Antennas List includes the following read-only parameters for each defined antenna:

Parameter	Description
Antenna Number	The index number of the antenna.
Antenna Product Type	The type of antenna (Product ID).

Select an entry to open the Antenna Parameters Editor, allowing you to view/modify the selected antenna parameters.

The following buttons are available below the Antennas List:

Parameter	Description
Add	Adds a new entry to the Antennas List. The Antenna Parameters Editor will open with default values, enabling to define the parameters for the new antenna. After completing the definition process and pressing Apply, the new antenna will be added to the list. Its number will be the first free number. The list can include up to 28 antennas for an Indoor BTS and up to 24 antennas for an Outdoor BTS.
Delete	Deletes the selected entry (or several selected entries) from the Antennas List.

IMPORTANT

An associated antenna (specified in a Site Sector Association) cannot be deleted. For more details refer to "Site Sector # Page" on page 263.

The Antennas Parameters Editor section includes the following parameters:

Parameter	Description
Antenna Product Type	The antenna type. The available options includes a list of default and standard antennas The Antenna Product Type of an associated Antenna cannot be modified.
Information	Read-only string indicating the characteristics of the Antenna according to the Antenna Product Type. The string structure is <type>,N,P,A,E,G,F,<EDT Supported>,<EDT Min>,<EDT Max>,<EDT Step>, <Frequency Min>, <Frequency Max> where: type: part number or one of the default antennas N: Number of Ports P: Polarization per port. Available options are V (Vertical), H (Horizontal), 45-45 (2-ports DS), 45-45 45-45 (4-ports DS) A: Azymuth Beam Width in degrees E: Elevation Beam Width in degrees G: Gain in dBi F: Front-to-Back Ratio in dB. <EDT Supported>: FALSE or TRUE <EDT Min>: The lowest value in the EDT control range <EDT Max>: The highest value in the EDT control range <EDT Step>: The EDT control resolution <Frequency Min>: The lowest supported frequency, in GHz <Frequency Max>: The highest supported frequency, in GHz
Description	A read-only description providing general details according to the Antenna Product Type. The details include the antenna manufacturer, number of ports, polarization, azymuth beamwidth (if other than omni) and gain. EDT indicates support of Electrical Down Tilt.

Parameter	Description
Specification	
Electrical Down Tilt (deg)	The downwards electrical tilt of the antenna, in degrees. The range is from -90.0 to 90.0 using 0.1 degree resolution. Used only for information (inventory) purposes.
Installation	
Mechanical Down Tilt (deg)	The downwards mechanical tilt of the antenna (in degrees) as opposed to the electrical tilt already integrated in the antenna (and thus taken as reference; instead of the horizontal plane). The range is from -90.0 to 90.0 using 0.1 degree resolution. Used only for information (inventory) purposes.
Heading (deg)	The the azimuth angle (in degrees) between the center of the horizontal antenna beamwidth and the true north; counting clockwise.The range is from 0 to 359. Used only for information (inventory) purposes.
Cable Loss (dB)	The attenuation (in dB) of the cable between the ODU port and antenna port. The range is from 0 to 20 in 0.1 dB steps. Used only for information (inventory) purposes.
Location	
Longitude (deg)	The longitude of the antenna. The format is lll.mmm,a: lll.is longitude in degrees (between 000 to 179); mmm is in minutes (between 000 and 999); a - is E (east) or W (west) Used only for information (inventory) purposes.
Latitude (deg)	The latitude of the antenna. The format is ll.mmm,a: ll.is longitude in degrees (between 00 to 89); mmm is in minutes (between 000 and 999); a - is S (south) or N (north). Used only for information (inventory) purposes.
Tower Height (m)	The height of the antenna above the ground in meters. The range is from 0 to 500. Used only for information (inventory) purposes.

6.9 ASN-GW

The ASN-GW node is not applicable for devices in Centralised ASN Topology.

THE ASN=GW enables defining various parameters pertaining to the Access Service Network (ASN) Gateway functionality of the managed device.

The ASN-GW node includes the following pages:

- "AAA Page"
- "Service Group Page"
- "QoS Marking Page"
- "SFA Page"
- "ASN-GW Keep Alive Page"

6.9.1 AAA Page

The AAA page enables the configuration of general RADIUS parameters and the AAA client. The RADIUS client encapsulates the messages destined for the AAA

server in RADIUS messages or decapsulates messages sent by the AAA server for the MS.

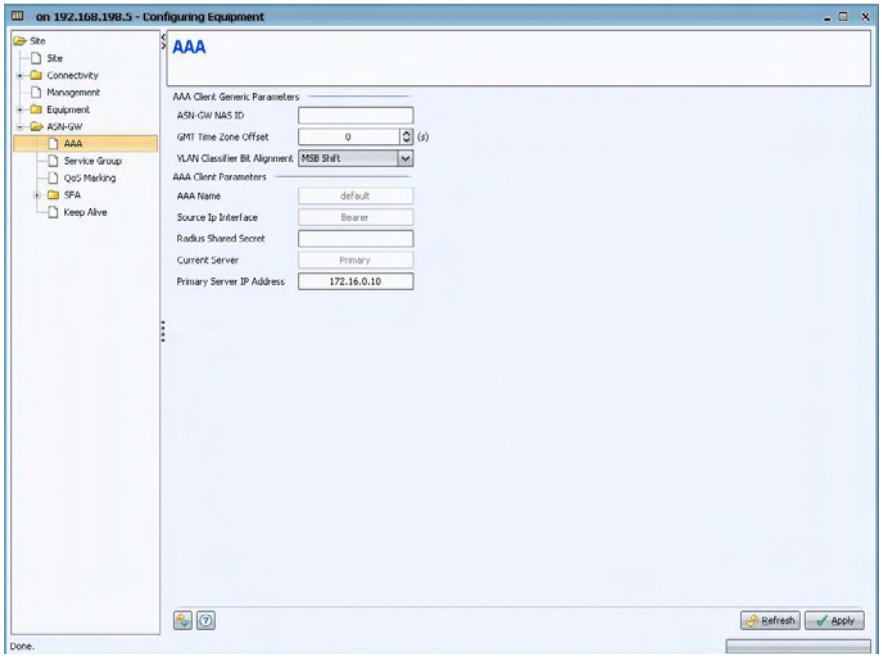


Figure 6-27: AAA Page

The AAA page comprises two sections: the AAA Client Generic Parameters and the AAA Client parameters.

The AAA Client Generic Parameters are:

Parameter	Description
ASN-GW NAS ID	The unique identifier of the ASN-GW NAS. Sent in Access Request message only if configured. Should be in FQDN format. Up to 64 characters.
GMT Time Zone Offset	The time zone offset, in seconds, from GMT at the NAS. The range is from 0 to 86400 seconds.

Parameter	Description
VLAN Classifier Bit Alignment	Defines how to transfer VLAN ID between R3 and R6: ■ MSB Shift: a. When transferring classifier VID value from R3 side to R6 side, the binary value of the 12 least significant bits in R3 TLV will be copied and pasted as most significant bits in R6 TLV. b. When transferring classifier VID value from R6 to R3, the binary value of the 12 the most significant bits in R6 TLV will be copied and pasted as the 12 least significant bits in R3 TLV. ■ LSB: The whole 16 bit value of the relevant TLV will be transferred without any change when transferring classifier VID value from R3 side to R6 side and from R6 to R3.

The AAA Client parameters are:

Parameter	Description
AAA Name	The name of the AAA Client. In the current release supporting a single client this is a read-only parameter (default).
Source IP Interface	Read-only (Bearer). Indicates the interface providing RADIUS client functionality..
RADIUS Shared Secret	The shared secret between the authenticator function and the AAA server. A string of 1 to 49 characters.
Current Server	A read only display of the current active server being used. In the current release that does not support AAA server redundancy this is always Primary.
Primary Server IP Address	The IPv4 address of the AAA server.

6.9.2 Service Group Page

The Service Group page enables managing the service interfaces and service groups.

The Service Group page includes the following tabs:

- "Service Interfaces Tab"
- "Service Groups Tab"

6.9.2.1 Service Interfaces Tab

The Services Interfaces tab enables viewing/modifying the parameters of existing service interfaces. It also enables adding new service interfaces (up to a maximum of 10) and deleting service interfaces.

A Service Interface defines the parameters of the interface used by the NPU on the network side for services using the applicable Service Interface, specified in the applicable Service Group.

The following types of Service Interface are available:

- IP-in-IP: The Service Interface defines the parameters on the NPU side of a point-to-point tunnel to be used for the applicable traffic.
- VLAN: The Service Interface defines the VLAN ID to be added/removed by the NPU to/from the applicable traffic.

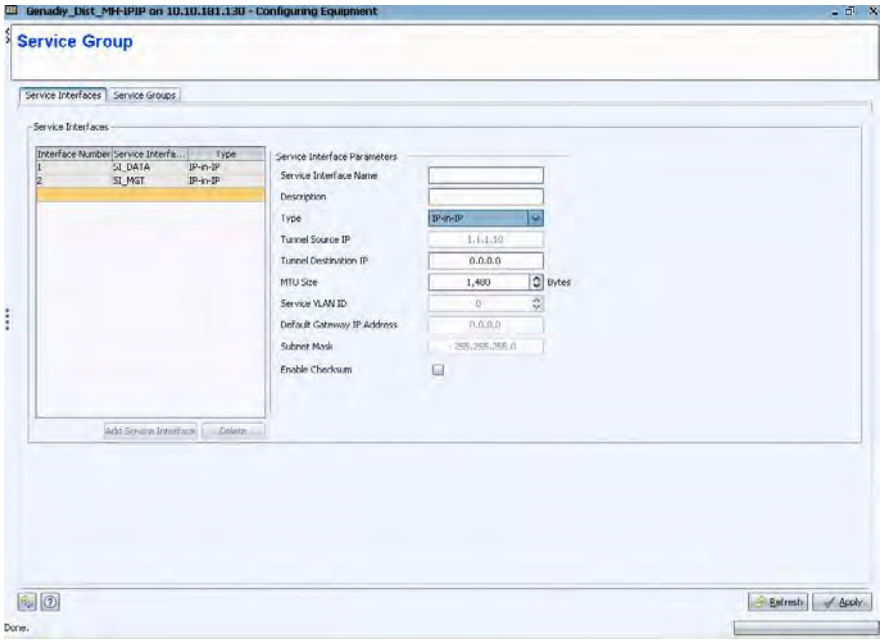


Figure 6-28: Service Group Page - Service Interfaces Tab

The Service Interfaces table includes the following read-only parameters for each of the configured service interfaces:

Parameter	Description
Interface Number.	The index number of the interface (1-10).
Service Interface Name	The name of the service interface.
Type	The type of service interface: IP-in-IP, VLAN., QinQ

Select an entry in the table to open the Service Interface Editor for the selected service interface.

The following buttons are available below the Service Interfaces table:

Parameter	Description
Add Service Interface	Adds a new entry to the table and opens the Service Interface Editor, allowing configuration of parameters for the new service interface. Up to 10 service interfaces can be defined..
Delete	Deletes the selected entry (or several selected entries) from the table. A service Interface associated to a Service Group cannot be deleted.

NOTE

The Bearer Interface IP Address (see “IP Interface Page” on page 145) must be configured prior to creating any IP-in-IP or VLAN service interfaces.

The Service Interface Editor includes the following parameters:

Parameter	Description
Service Interface Name	The name (alias) of the service interface. A string of 1 to 30 characters. Must be unique in the device. Configurable only when adding a new service interface.
Description	A brief desciption of the service interface. A string of up to 70 characters.
Type	The type of service interface: IP-in-IP, VLAN, or QinQ. Configurable only when adding a new service interface..
Tunnel Source IP	Applicable only for IP-in-IP service interface. Read-only. The source IPv4 address that indicates the point of origination of the tunnel for the service interface. Set to the value of the Bearer Interface IP Address (see “IP Interface Page” on page 145).
Tunnel Destination IP	Applicable only for IP-in-IP service interface. Configurable only when adding a new service interface.The destination IPv4 address that indicates the point of termination of the tunnel for the service interface.
MTU Size(Bytes)	The MTU in bytes. Received packets that are larger than the configured MTU will be dropped. The range is 556-1804.
Service VLAN ID	Applicable only for VLAN and QinQ service interfaces. Configurable only when adding a new service interface. The Service Interface VLAN ID parameter. The range is 1-9, 11- to 4094. A Service Interface VLAN ID shall not conflict with other instances of Service Interface VLAN ID and VLAN IDs of Bearer, Local-Management and External-Management interaces. Shall also not conflict with CVID of any transparent MS.

Parameter	Description
Default Gateway IP Address.	Applicable only for VLAN service interfaces. Configurable only when adding a new service interface. The IP Address of the Default Gateway. Must be unique among all the Host Interfaces IP's (Bearer, Local-Management, Internal-Management, External-Management) and existing instances of Service Interface's Tunnel Destination IP Address and Default Gateway IP Address. Should be in the same subnet.with the IP Address of the DHCP server/proxy/relay to be assigned to a service group using this service interface.
Subnet Mask	Applicable only for VLAN service interfaces. The subnet mask of the default gateway. Should not overlap with an existing Interface subnet (host interfaces, other service interfaces).
Enable Checksum	Applicable only for IP-in-IP service interfaces. Indicates whether or not the tunnel checksum feature is enabled (yes or no).

6.9.2.2 Service Groups Tab

The Services Groups tab enables viewing/modifying the parameters of existing service group. It also enables adding new service groups (up to a maximum of 10) and removing service groups.

A service group is a group of MSs that are served by the same service provider or service flows that belong to the same service class.

The following service group types are supported:

- **IP**: This type of service group is used only for IP CS flows. Once service group is configured as type IP, additional IP allocation configuration is also required (such as DHCP mode, IP pool, IP Subnet, etc). This type of service group must be associated with either IP-IP (encapsulated IP packets) or VLAN type of R3 service interface. An IP service group can be configured to support time based or volume and time based accounting. In addition, an IP service group can be configured to support direct communication between MSs belonging to the service group.

- **VPWS-Transparent**: This type of service group is used only for VLAN CS flows. Once service group is configured as VPWS-Transparent type, IP allocation configuration is not required. This type of service group is not associated with any R3 service interface as vlan-tagged MS traffic is transferred transparently on the on the R3 interface. A VPWS-Transparent service group can be configured to support time based accounting.

- **VPWS-QinQ**: This type of service group is used only for VLAN CS flows. Once service group is configured as type VPWS-QinQ type, IP allocation configuration is not required. This type of service group is not associated with any R3 service interface as double-tagged MS traffic is transferred transparently on the on the R3 interface. The QinQ VLAN used by the MS should be received from the AAA server in Access-Accept messages. A VPWS-QinQ service group can be configured to support time based accounting.

- **VPWS-Mapped**: This type of service interface is intended for special needs were VLAN CS service flows from multiple MSs use the same VLAN ID. Once service group is configured as VPWS- Mapped type, IP allocation configuration is not required. This type of service group makes the mapping between a unique MS flow VLAN ID used on R3 interface and a CVID. The CVID can be missing. For this service group type a VLAN pool need to configured. The ASN-GW will uniquely allocate a VLAN from the configured pool to each MS flow to be used on R3 interface. A VPWS-Mapped service group can be configured to support time based accounting.

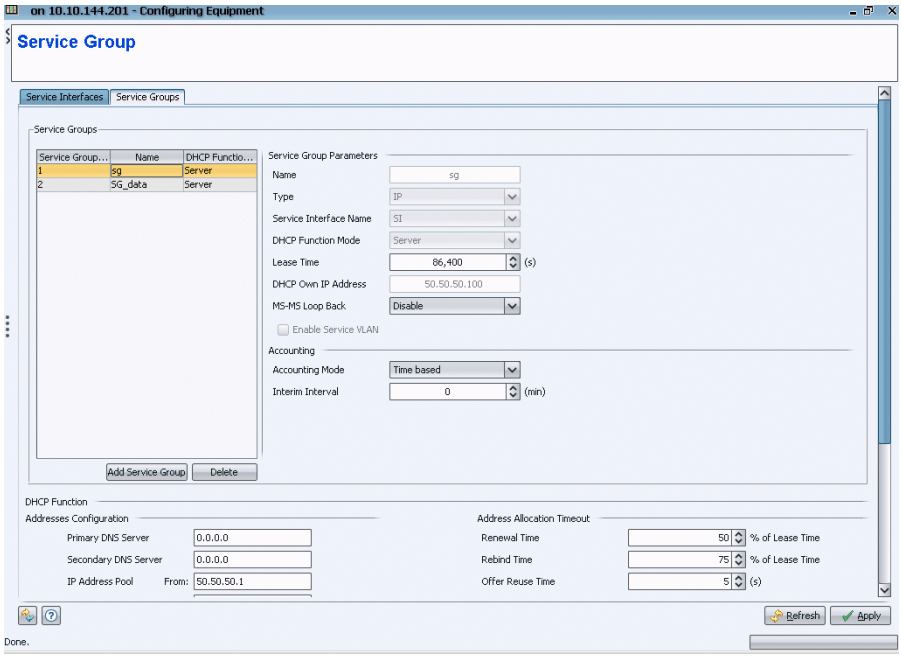


Figure 6-29: Service Group Page - Service Groups Tab, Upper Section (Server/Proxy Mode)

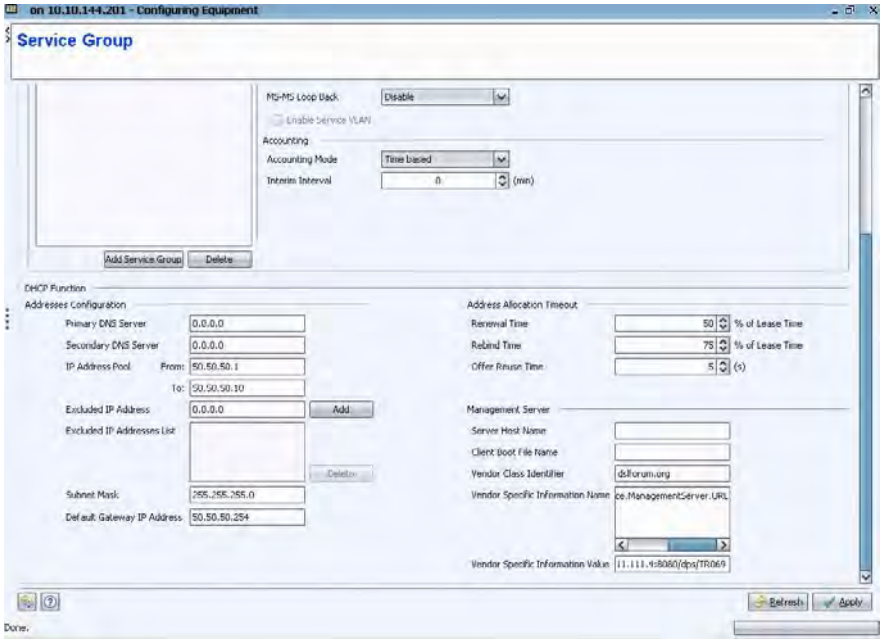


Figure 6-30: Service Group Page - Service Groups Tab, Lower Section, Server/Proxy Mode

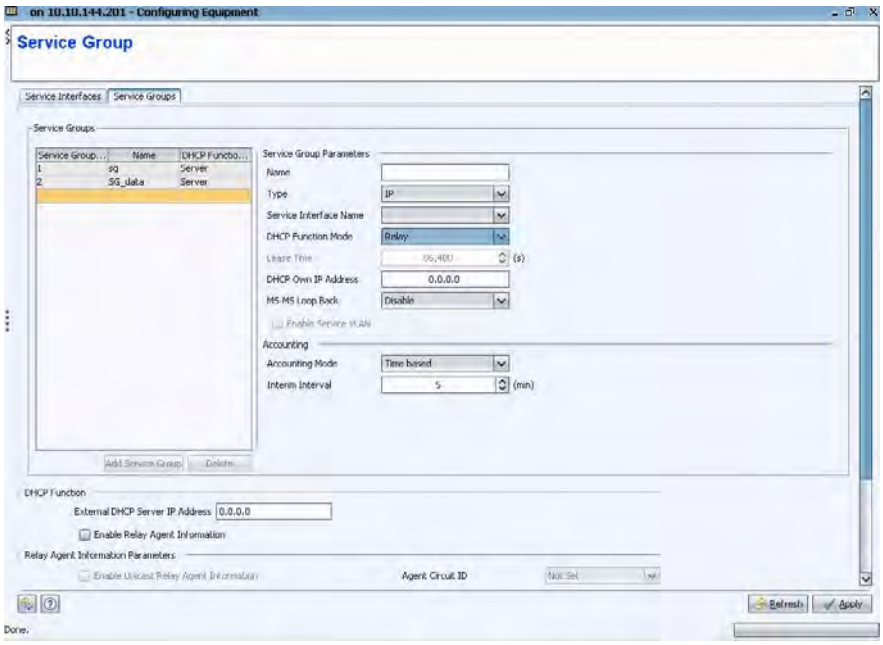


Figure 6-31: Service Group Page - Service Groups Tab, Upper Section, Relay Mode

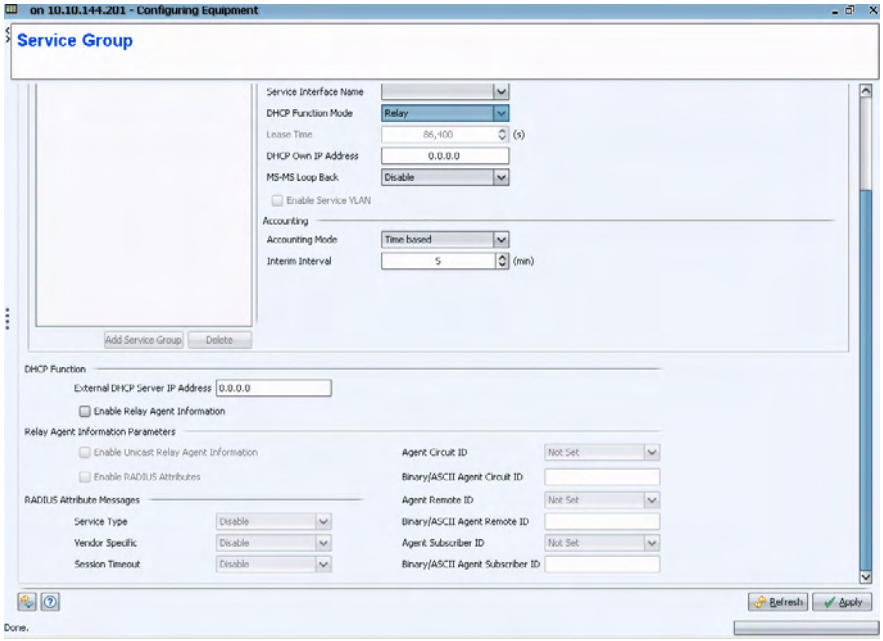


Figure 6-32: Service Group Page - Service Groups Tab, Lower Section, Relay Mode

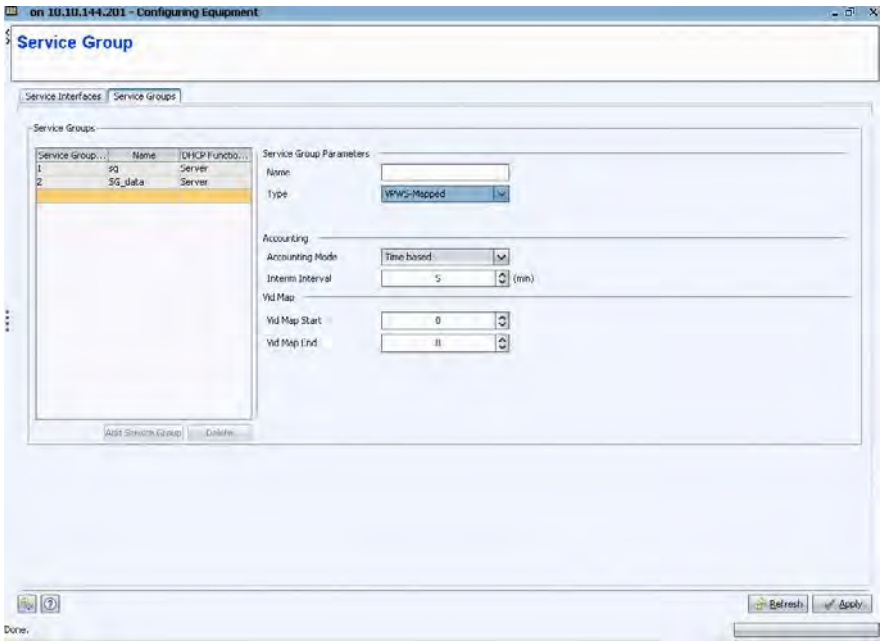


Figure 6-33: Service Group Page - Service Groups Tab, VPWS-Mapped Service Type

The Service Groups tab includes the Service Groups table and the Editors for Service Group Parameters and DHCP Function.

Select an entry in the table to open the Editors for the Service Group Parameters and the DHCP Function tor for the selected service group.

The Service Groups table includes the following read-only parameters for each of the existing service groups:

Parameter	Description
Service Group Number	The index number of the Service Group.
Name	The name (alias) of the Service Group.
Service Interface Name	The name of the service interface associated to the service group.

The following buttons are available below the Service Groups table:

Parameter	Description
Add	Adds a new entry to the Service Groups table and opens the Editors for the Service Group Parameters and DHCP Function, allowing to configure the required parameters.
Delete	Deletes the selected entry (or several selected entries) from the Service Groups table. A Service Group cannot be deleted if it is assigned to a Service Flow. Refer to "Service Profile Page" on page 212. A Service Group with an associated VLAN Service Interface cannot be deleted if the Enable Service VLAN is set to enable.

The Service Group Parameters Editor section includes the following parameters

Parameter	Description
Name	The name (alias) of the service group. A string of 1 to 30 characters. Must be unique in the device. Configurable only when creating a new Service Group.
Type	The Service Group's type: IP, VPWS-QinQ, VPWS-Transparent, VPWS-Mapped. Configurable only when creating a new Service Group.

Parameter	Description
Service Interface Name	Applicable only for IP Service Groups. The pre-defined service interface alias used as the data path for traffic towards the core network. Configurable only when creating a new Service Group. Note that a Service Interface can be associated only to a single Service Group.
DHCP Function Mode	Applicable only for IP Service Groups. The DHCP function mode. ■ Server: The ASN-GW function as a DHCP server that allocates an IP address to the MS from the local pool (in the non-HA mode). ■ Relay: The IP address is obtained using an external DHCP server (in the non-HA mode). ■ Proxy: Non-HA mode: In Non-HA mode the DHCP proxy assigns the MS, the IP address that was received from AAA in the MS profile. In HA mode the DHCP proxy assigns to the MS the IP address received in the MS profile or obtains the IP address from HA using the mobile IP. Configurable only when creating a new Service Group. Note that upon selection of the Relay option the other parameters available in the Editors change to reflect the unique functionality of this mode.
Lease Time	Applicable only for IP Service Groups. Not applicable in DHCP Relay mode. The lease time in seconds of IP address allocated for MS from this Service Group. The range is 24-4294967295. In the Proxy mode, this value is used if appropriate parameter is not received in RADIUS Access-Accept.
DHCP Own IP Address	Applicable only for IP Service Groups. The IP address of the DHCP server/relay/proxy. For a service group using a VLAN service interface, should be in same subnet with the Default Gateway configured for the service interface associated with the service group. Subnet mask is taken as the default subnet mask i.e 255.255.255.0. Configurable only when creating a new Service Group.
Enable Service VLAN	Applicable only for IP Service Groups with an attached VLAN service interface. Indicates the status of a VLAN service interface attached to the service group. Not configurable when the attached Service Interface is IP-in-IP. If a Service Group with Service VLAN enabled is attached to a Service Profile, Service VLAN cannot be disabled.

Parameter	Description
MS-MS Loopback	Applicable only for IP Service Groups. Indicates whether MS-MS loopback is enabled or disabled for the service interface.
VID Mapping Range	
Start	Applicable only for VPWS-Mapped Service Groups. The start value of the range of VLAN IDs for mapping. None of the value within the range shall overlap with any existing infrastructue (host interfaces) VLAN IDs. None of the value within the range shall overlap with VID mapping ranges of other existing Service Groups.
End	Applicable only for VPWS-Mapped Service Groups. The end value of the range of VLAN IDs for mapping. Cannot be lower than Start value. None of the value within the range shall overlap with any existing infrastructue (host interfaces) VLAN IDs. None of the value within the range shall overlap with VID mapping ranges of other existing Service Groups.
Accounting	
Accounting Mode	Accounting mode for the service interface: None: No accounting support. Time based: The ASN-GW send RADIUS Accounting Start/Stop Requests. The ASN-GW shall also send Interim Accounting requests to AAA server using RADIUS Accounting Interim messages on a preconfigured or negotiated interval. AAA server can send negotiated time interval in Access-Accept message. If the defined value (see Interim Interval below) is zero and there is no Acct-Interim-Interval in Access Accept, interim updates should be deactivated. Volume and time based: Applicable only for IP Service Groups. Functionality is the same as for Time option above. In addition, this mode supports postpaid accounting by supporting IP Session Volume Based Accounting. The ASN-GW will report the cumulative volume counters for each MS IP Session. The counters will be collected per MS Service Flow and will be cumulated in order to get the MS IP Session counters.
Interim Interval	Not applicable if Accounting Mode (see above) is set to None. The default interval in seconds for Accounting Interim reports to be used if Acct-Interim-Interval is not received from the AAA server. Value “0” means interim reports are deactivated unless Acct-Interim-Interval is sent by the AAA server in Access Accept messages. The valid range is 0 (none) or 5-1600 (minutes).

The DHCP Function Editor for Server and Proxy modes includes the following parameters:

Parameter	Description
Address Configuration	
Primary DNS Server	IP Address of the first DNS Server to be provisioned to MS from this Group. In the Proxy mode, this value is used if appropriate parameter is not received in RADIUS Access-Accept.
Secondary DNS Server	IP Address of the second DNS Server to be provisioned to MS from this Group. In the Proxy mode, this value is used if appropriate parameter is not received in RADIUS Access-Accept.
IP Address Pool	Applicable only in Server mode. The range of IP addresses in the address pool (From - To). DHCP address in the pool shall not overlap with the DHCP address pool defined in an existing service group and with IP addresses of host interfaces(Bearer, External Management, Internal Management amd Local Management).
Add Excluded IP Address	Applicable only in Server mode. Enables you to add an IP address to the Excluded IP address List (see below). To add an IP address, enter it in the text box and click on the **Add** button.
Excluded IP Address List	Applicable only in Server mode. The list of IP addresses that are to be excluded from the address pool. The list can contain up to 16384 IP addresses. To remove one or several IP addresses from the list, select the addresses to be removed and click on the **Delete** button.
Subnet Mask	Applicable only in Server/Proxy mode. In Server mode, this is the subnet mask to be provided by local DHCP Server with IP address. In the Proxy mode, this value is used only if appropriate parameter is not received in RADIUS Access-Accept.
Default Gateway IP Address	Applicable only in Server/Proxy mode. In Server mode this is tP address of Default Gateway to be provided by local DHCP Server with IP address. In the Proxy mode, this value is used only if appropriate parameter is not received in RADIUS Access-Accept.
Address Allocation Timeout	
Renewal Time	The interval, as a percentage of the Lease Time, after which the MS can request renewal of a lease that has expired. The range is from 1 to 100. The renewal Time must be lower than rebind Time. This value is used if appropriate parameter is not received in RADIUS Access-Accept

Parameter	Description
Rebind Time	The rebind interval, as a percentage of the Lease Time. This is passed to the MS (DHCP client). The range is from 1 to 99. This value is used if appropriate parameter is not received in RADIUS Access-Accept.
Offer Reuse Time	The interval, in seconds, within which the MS should send a DHCP request to accept the address sent by the NPU. If the MS does not accept the address within this period, the MS is deregistered. The range is from 1 to 120.
Management Server	
Server Host Name	The server host name. This parameter is sent in dhcp-offer / dhcp-ack messages and may be used by certain CPEs. A string of up to 64 characters.
Client Boot File Name	The client boot file name. This parameter is sent in dhcp-offer / dhcp-ack messages and may be used by certain CPEs. A string of up to 128 characters.
Vendor Class Identifier	The option 60 string. Up to 30 characters. An empty string (null) means that DHCP Option 60 is disabled.
Vendor Specific Information Name	Option 43 Name string. Up to 64 characters.
Vendor Specific Information Value	Option 43 Value string. Up to 64 characters.

The DHCP Function Editor for Relay mode includes the following parameters:

Parameter	Description
External DHCP Server IP Address	The IP address of the external DHCP server,
Enable Relay Agent Information	Mark to enable Relay Agent Information (Option 82). All following parameters are applicable only if Relay Agent Information is enabled.
Relay Agent Information Parameters	
Enable Unicast Relay Agent Information	Indicates whether the Unicast parameter is enabled or disabled.
Enable RADIUS Attributes	Indicates whether RADIUS Attributes (sub-option 7) 82 is enabled or disabled.
RADIUS Attribute Messages *(applicable only if Enable RADIUS Attributes is enabled)*	
Service Type	Indicates whether Service Type (attribute 6) is enabled or disabled).
Vendor Specific	Indicates whether Vendor Specific (attribute 26) is enabled or disabled).
Session Timeout	Indicates whether Session Timeout (attribute 27) is enabled or disabled).

Parameter	Description
Agent Circuit ID	Suboption 1 of option 82. The available options are: Not Set (disable), Default, MS ID, BS ID, NAS ID, NAS IP, ASCII Agent Circuit ID, Binary Free String, Full-NAI, Domain, ASCII MS ID, ASCII BS ID. For ASCII Agent Circuit ID, enter the ID string in the **Binary/ASCII Agent Circuit ID** text box (up to 32 characters. For Binary Free String, enter a string of up to 32 hexadecimal digits (no spaces) in the **Binary/ASCII Agent Circuit ID** text box.
Agent Remote ID	Suboption 2 of option 82. The available options are: Not Set (disable), Default, MS ID, BS ID, NAS ID, NAS IP, ASCII Agent Remote ID, Binary Free String Full-NAI, Domain, ASCII MS ID, ASCII BS ID. For ASCII Agent Remote ID, enter the ID string in the **Binary/ASCII Agent Remote ID** text box (up to 32 characters. For Binary Free String, enter a string of up to 32 hexadecimal digits (no spaces) in the **Binary/ASCII Agent Remote ID** text box.
Agent Subscriber ID	Suboption 6 of option 82. The available options are: Not Set (disable), Default, MS ID, BS ID, NAS ID, NAS IP, ASCII Agent Subscriber ID, Binary Free String, Full-NAI, Domain. For ASCII Agent Subscriber ID, enter the ID string in the **Binary/ASCII Agent Subscriber ID** text box (up to 32 characters. For Binary Free String, enter a string of up to 32 hexadecimal digits (no spaces) in the **Binary/ASCII Agent Subscriber ID** text box.

6.9.3 QoS Marking Page

The QoS Marking page enables managing QoS marking rules for the bearer plane, based on parameters such as traffic priority, and the type of service, media, and interface.

For each marking rule, you can define the output parameters (outer-DSCP and VLAN-priority values) to be applied on service flows using best-match logic. For example, if we have the following two marking rules for BE traffic (Data Flow Delivery Type set to BE):

A. Interface Type set to Internal (R6) interface, All other parameters set to ANY.

B. All other parameters (including interface type) are set to ANY.

Than Rule A will apply to all BE traffic transmitted on the internal (R6) interface. Rule B will apply to all other BE traffic, meaning traffic transmitted on the external (R3) interface.

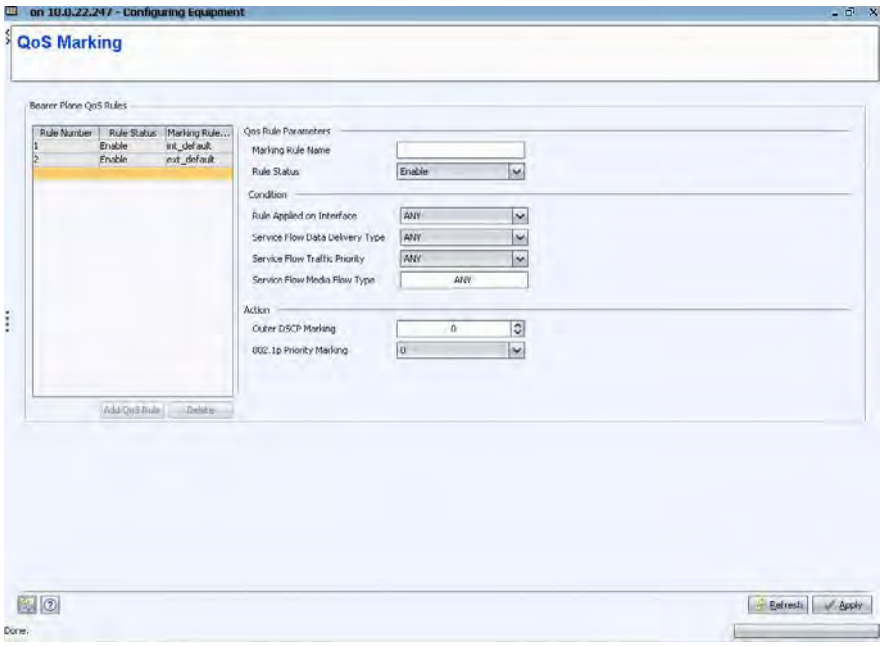


Figure 6-34: QoS Marking Page

The QoS Marking page comprises two sections: the Bearer Plane QoS Rules table and the QoS Rule Parameters Editor.

The Bearer Plane QoS Rules table includes the following read-only parameters for each existing rule:

Parameter	Description
Rule Number	The index number of the rule. An auto-sequential number from 1 to a maximum of 20.
Rule Status	The status of the rule (Enable or Disable).
Marking Rule Name	The name of the QoS marking rule.

Select an entry to open the QoS Rule Parameters Editor for the selected rule.

The following buttons are available below the table:

Button	Description
Add QoS Rule	Adds a new entry to the Bearer Plane QoS Rules table and opens the QoS Rule Parameters Editor, allowing to configure the new rule's parameter..
Delete	Deletes the selected entry (or several selected entries) from the table. Note that the default rules (Rule Number 1 and 2) cannot be deleted.

The QoS Rule Parameters Editor displays the following parameters for the new/selected rule:

Parameter	Description
Marking Rule Name	The name of the QoS marking rule. A string of 1 to 30 characters. Must be unique in the device. The name of an existing rule cannot be modified.
Rule Status	The status of the rule (Enable or Disable).
Condition	
Rule Applied on Interface	The type of interface for which the bearer plane QoS rule is defined: Internal (R4/R6 tunnel), External (R1), or ANY.. The Interface type of an existing rule cannot be modified.
Service Flow Data Delivery Type	The type of service provided as an input parameter for the bearer plane QoS rule: UGS , RTVR; NRTVR; BE; ERTVR, or ANY. The Service Flow Data Delivery Type of an existing rule cannot be modified.
Service Flow Traffic Priority	The traffic priority provided as an input parameter for the bearer plane QoS rule: 0-7 or ANY. The Service Flow Traffic Priority of an existing rule cannot be modified.
Service Flow Media Flow Type	The media type provided as an input parameter for the bearer plane QoS rule. A value of ANY indicates that this parameter will be ignored. A string of 1 to 30 characters. The Service Flow Media Flow Type of an existing rule cannot be modified.
Action	
Outer DSCP Marking	The Differentiated Service Code Point (DSCP) value to be used for marking the packets, if the packet complies with the marking rule's conditions. The range is from 0 to 63.
802.1p Priority Marking	The 802.1p priority to be used for marking traffic that complies with the marking rule's conditions. The range is from 0 to 7.

6.9.4 SFA Page

The Service Flow Authorization (SFA) functionality handles creation/maintenance of pre-provisioned service flows for MS. It maps the AAA parameters (service profile name) received from the AAA server to pre-configured WiMAX-specific QoS parameters in the NPU.

The SFA page enables configuring and maintaining service flows, including configuring Packet Header Suppression (PHS) rules, multiple service profiles with multiple service flows, and classification rules.

The SFA page includes the following tabs:

- "PHS Rules Tab"
- "Classification Rules Tab"

In addition, the "Service Profile" sub-node of the SFA node enables creating new service profiles and viewing/modifying service profiles.

6.9.4.1 PHS Rules Tab

The PHS Rules tab enables defining rules for Packet Header Suppression (PHS). PHS rules are provisioned on a per-service profile name basis.

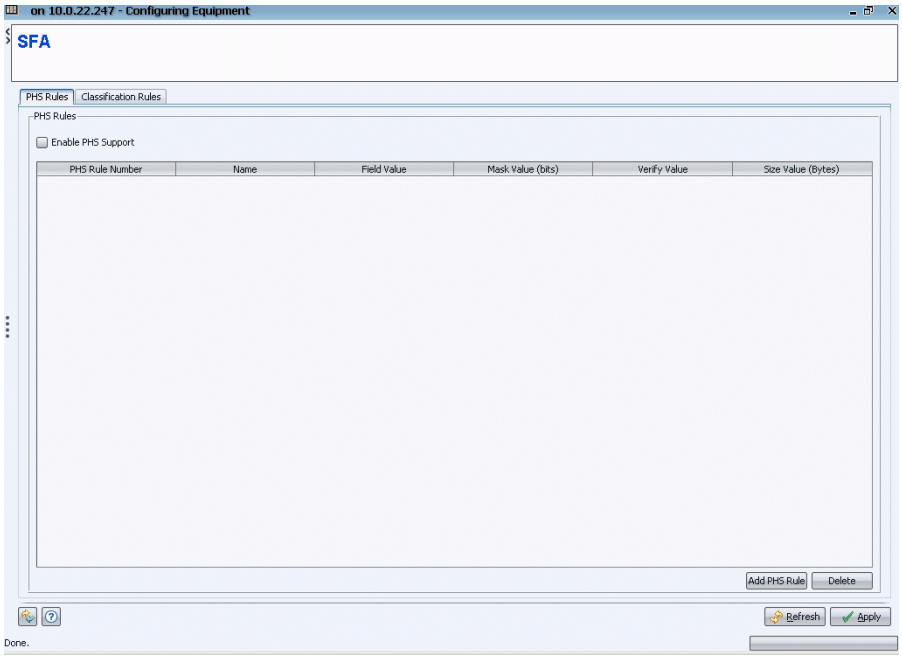


Figure 6-35: SFA Page - PHS Rules Tab

The PHS Rules tab includes the Enable PHS Support check-box and the PHS Rules table:

Parameter	Description
Enable PHS Support	Indicates whether or not PHS is enabled or disabled. This setting applies to all PHS rules.

The PHS Rules table includes the following parameters:

Parameter	Description
PHS Rule Number	The index number of the PHS rule. An auto sequential number from 1 up to a maximum of 255 generated automatically during rule creation.
Name	The name of the PHS rule. 1-30 characters.
Field Value	The PHSF value, that is, the header string to be suppressed.
Mask Value (bits)	The PHSM that contains the bit-mask of the PHSF with the bits set that is to be suppressed.
Verify Value	Indicates whether or not the PHS header is to be verified.
Size Value (Bytes)	The size of the header to be suppressed. 0-20.

The following buttons are available at the bottom of the page:

Parameter	Description
Add PHS Rule	Adds a new entry to the PHS Rules table allowing to configure parameters of the new rule.
Delete	Deletes the selected entry (or several selected entries) from the PHS Rules table.

6.9.4.2 Classification Rules Tab

The Classification Rules tab enables defining the rules that are used to classify packets transmitted on the bearer plane.

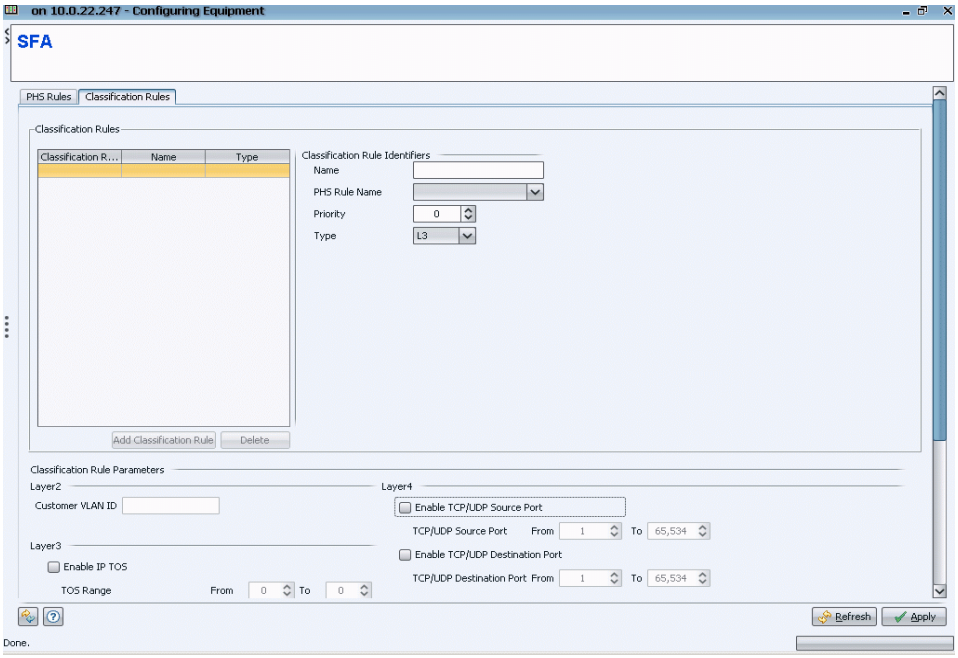


Figure 6-36: SFA Page - Classification Rules Tab, Upper Section

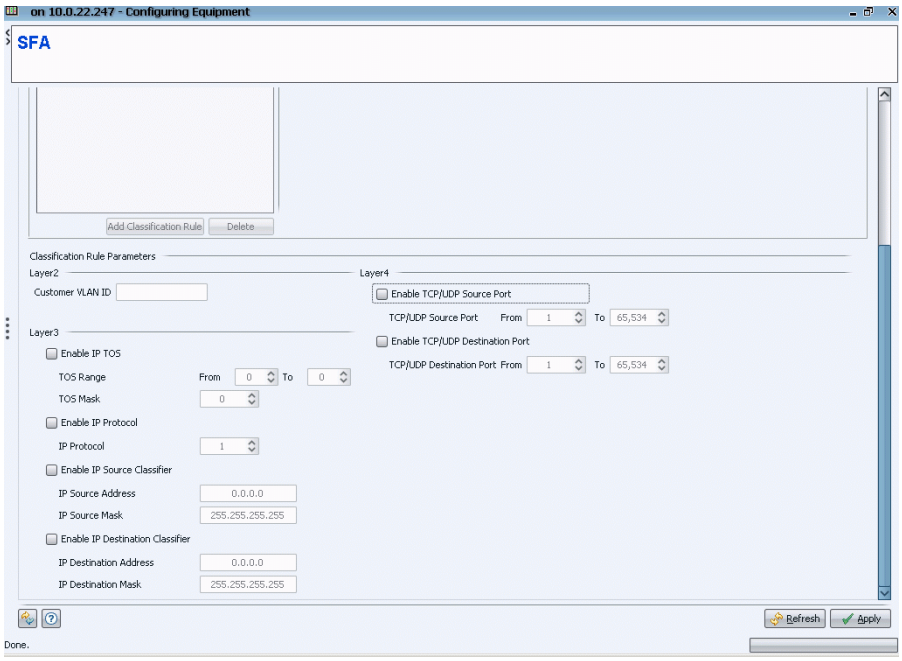


Figure 6-37: SFA Page - Classification Rules Tab, Lower Section

The Classification Rules tab includes the Classification Rules table and the Classification Rule Parameters Editor section.

The Classification Rules table includes the following read-only parameters for each existing rule:

Parameter	Description
Classification Rule Number	The index number of the Classification rule. An auto-sequential number starting from 1 up to a maximum of 100 rules.
Name	The name of the rule.
Type	The type of the rule (L2 or L3).

Select an entry to open the Classification Rule Parameters Editor for the selected rule.

The following buttons are available below the table:

Parameter	Description
Add Classification Rule	Adds a new entry to the Classificaton Rules table and opens the Classification Rule Parameters Editor allowing to configure parameters of the new rule.

Parameter	Description
Delete	Deletes the selected entry (or several selected entries) from the Classificaton Rules table.

The Classification Rule Parameters Editor includes the following parameters:

Parameter	Description
Classification Rule Identifiers	
Name	The name of the classification rule. A string of 1-30 characters. The name of an existing rule cannot be modified.
PHS Rule Name	The Packet Header Suppression (PHS) rule name associated with the classification rule, or null for no PHS Rule. Specify the PHS rulename if you want to perform PHS for this flow.
Priority	The priority level assigned to the classification rule. The range is 0-255.
Type	The rule's type: L2 or L3. The type of an existing rule cannot be modified.
Classification Rule Parameters	
***Layer 2** (applicable only for L2 rules)*	
Customer VLAN ID	The Customer VLAN ID value to be assigned to the classification rule. The range is 1-4094.
***Layer 3** (applicable only for L3 rules)*	
Enable IP TOS	Indicates whether the use of TOS-based classification is enabled.
TOS Range	Relevant only if Enable IP TOS is enabled. Configurable only when Enable IP TOS is disabled. The range of values (From-To) of the IP TOS field from the lowest value to the highest value. Values range is from 0 to 63.
TOS Mask	Relevant only if Enable IP TOS is enabled. The mask for IP TOS value.This bit mask is applied to the TOS field received in the IP header to be matched within the configured TOS range. The range is from0 to 63.
Enable IP Protocol	Indicates whether the packet is classified based on the value of the IP protocol.
IP Protocol	Relevant only if Enable IP Protocol is enabled. Configurable only when Enable IP Protocol is enabled. The enabled protocol number. Value is in the range 1-255 (using standard IANA protocol values).
Enable IP Source Classifer	Indicates whether the use of an associated IP source address is enabled for the classification rule.
IP Source Address	Relevant only if Enable IP Source Classifier is enabled.Configurable only when Enable IP Source Classifier is enabled. The IP source address enabled for the classification rule

Parameter	Description
IP Source Mask	Relevant only if Enable IP Source Classifier is enabled. Configurable only when Enable IP Source Classifier is enabled. The net mask field that is used to specify a range of IP source addresses.
Enable IP Destination Classifier	Indicates whether the use of an associated destination address is enabled for the classification rule.
IP Destination Address	Relevant only if Enable IP Destination Classifier is enabled. Configurable only when Enable IP Destination Classifier is enabled. The IP destination address enabled for the classification rule
IP Destination Mask	Relevant only if Enable IP Destination Classifier is enabled. Configurable only when Enable IP Destination Classifier is enabled. The net mask field that is used to specify a range of IP destination addresses.
Layer 4 *(applicable only for L3 rules)*	
Enable TCP/UDP Source Port	Indicates whether the use of a range of source ports is enabled for the classification rule. If enabled, then Enable IP Protocol is set to enable. Protocol can be either 6 (TCP) or 17 (UDP).
TCP/UDP Source Port:	Relevant only if Enable TCP/UDP Source Port is enabled. Configurable only when EnableTCP/UDP Source Port is enabled. The range of values (From-To) of the source ports from the lowest value to the highest value. Values range is from 1 to 65535.
Enable TCP/UDP Destination Port	Indicates whether the use of a range of destination ports is enabled for the classification rule. If enabled, then Enable IP Protocol is set to enable. Protocol can be either 6 (TCP) or 17 (UDP).
TCP/UDP Destination Port	Relevant only if Enable TCP/UDP Destination Port is enabled. Configurable only when EnableTCP/UDP Destination Port is enabled. The range of values (From-To) of the destination ports from the lowest value to the highest value. Values range is from 1 to 65535.

6.9.4.3 Service Profile

The NPU allows for guaranteed end-to-end QoS for user traffic across the ASN. The QoS approach is connection-oriented, whereby user traffic is classified into “service flows”. A service flow is a unidirectional stream of packets, either in the downlink or uplink direction, associated with a certain set of QoS requirements such as maximum latency. The QoS requirements for service flows are derived from “service profiles” defined by the operator. A service profile is a set of attributes shared by a set of service flows. For instance, an operator might define a service profile called “Internet Gold” that will include QoS and other definitions

to be applied to service flows associated with users subscribed to the operator's “Internet Gold” service package.

The factory default configuration includes an ‘empty” (no defined Service Flows) Service Profile with the name Default. If enabled, it will be used if profile descriptor is missing in service provisioning or if received profile descriptor is disabled (unauthenticated mode). Up to 63 additional Service Profiles may be created.

The Service Profile node enables creating new service profiles, opening the Service Profile page for one of the existing service profiles and deleting a service profile.

6.9.4.3.1 Creating/Deleting a Service Profile

To create a new service profile:

1 Right-click the Service Profile sub-node in the navigation tree and select **Create** to open the New Service Profile window.

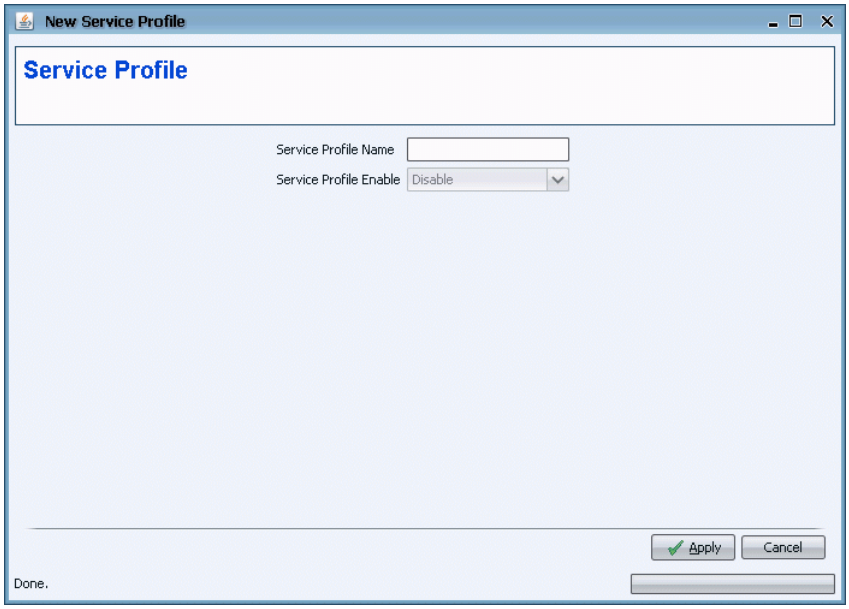


Figure 6-38: New Service Profile Window

2 In the New Service Profile window, define the Service Profile Name (1-30 characters) and click **Apply**. The new service profile will be added to the list of service profiles available under the Service Profile sub-node, with the default status of Disable.

3 To configure the parameters of the new service profile, click on the service profile name in the navigation tree to open the Service Profile page for this service profile.

Up to a maximum of 64 service profiles can be created.

To delete a Service Profile:

To delete a service profile, right-click the required service profile entry in the navigation tree and select **Delete**. You will be request to confirm the operation.

Note that the Default (pre-configured) service profile cannot be deleted.

6.9.4.3.2 Service Profile Page

The Service Profiles page enables viewing the Service Profiles in the device's database, defining new Service Profiles, and editing or deleting existing Service Profiles.

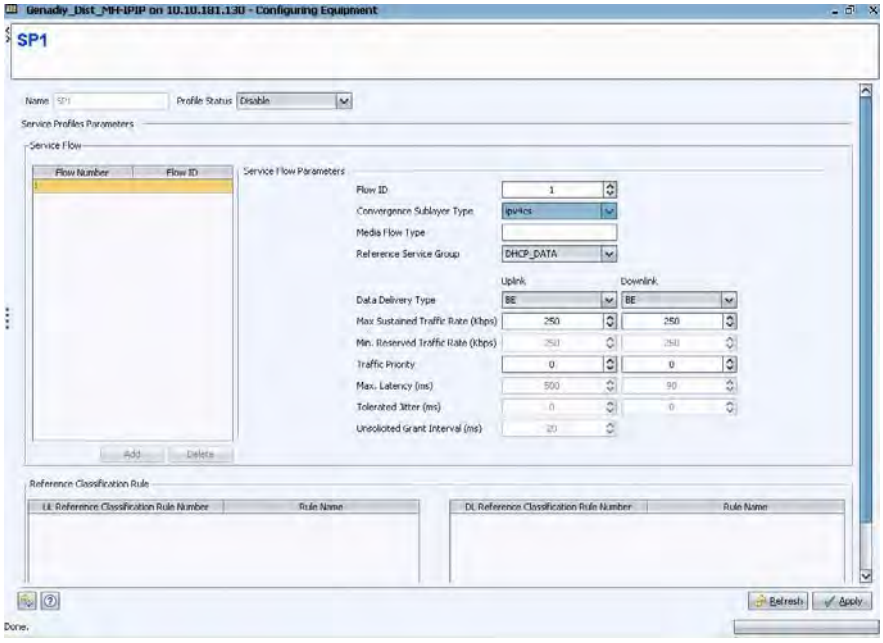


Figure 6-39: Service Profile Page

The Service Profiles page includes the following sections:

- "General Service Profile Parameters"

- "Service Flow Table"
- "Reference Classification Rule Section"

6.9.4.3.2.1 General Service Profile Parameters

The General Service Profile parameters at the top of the page are:

Parameter	Description
Name	The read-only name of the service profile.
Profile Status	Indicates whether the profile is enabled or disabled.

6.9.4.3.2.2 Service Flow Table

Service flows are unidirectional stream of packets, either in the downlink or uplink direction, associated with a certain set of QoS requirements such as maximum latency and minimum rate. Based on certain classification rules, service flows are transported over the R1 air interface in 802.16e connections, identified by connection IDs, and identified by GRE keys over the R6 interface in GRE tunnels. In addition, the ASN-GW can mark outgoing traffic in the R3 interface for further QoS processing within the CSN.

The system supports two types of service flows according to the convergence sublayer (CS) type: IP CS and VLAN CS. An IP CS service flow can be associated only with an IP service group. A VLAN CS service flow can be associated only with a VPWS (Transparent/QinQ/Mapped) service group. VLAN CS service flows can be configured only for the Default Service Profile.

Up to 12 Service Flows can be defined for each Service Profile.

The Service Flow table includes the following read-only parameters for each service flow of the service profile:

Parameter	Description
Flow Number	The index number of the service flow. An auto-sequential number from 1 up to a maximum of 12 generated automatically during creation of a new service flow.
Flow ID	The flow ID of the service flow for which the service flow configuration mode is enabled.

Select an entry to open the Service Flow Parameters Editor and enable the Reference Classification Rule Editor for the selected service flow.

The following buttons are available below the table:

Parameter	Description
Add	Adds a new entry to the table and .open the Service Flow Parameters Editor and enable the Reference Classification Rule Editor, allowing to configure parameters for the new service flow.
Delete	Deletes the selected entry (or several selected entries) from the table.

6.9.4.3.2.3 Service Flow Parameters Editor

The Service Flow Parameters Editor includes the following parameters:

Parameter	Description
Flow ID	The flow ID of the service flow. A number in the range 1-255..
Convergence Sublayer Type	Convergence Sublayer Type: ipv4cs or vlancs. vlancs service flows can be defined only for the Default Service Profile.
Media Flow Type	The type of media carried by the service flow. An optional string of up to 32 characters.
Reference Service Group	The Name of an existing service group to be used by the service flow. VPWS Service Groups are applicable only for VLAN CS Service Flows of the Default Service Profile.
Reference Service Interface	The Name for an existing QinQ service interface. Applicable only if the assigned Service Group is of type VPWS-QinQ (in a VLANCS Service Flow of the Default Service Profile).
Uplink/Downlink	
Data Delivery Type	The data delivery type for uplink/downlink traffic carried by the service flow. The available options are UGS; RTVR; NRTVR; BE; ERTVR and ANY.)
Max. Sustained Traffic Rate (Kbps)	The maximum sustained traffic rate, in Kbps, for uplink/downlink traffic carried by the service flow. The range is 10-40000. Relevant only for service flows with the appropriate uplink/downlink data delivery type (NRTVR, RTVR, BE, ERTVR, ANY)
Traffic Priority	The traffic priority to be applied to the uplink/downlink traffic carried by the service flow. The range is 0-7. Not applicable for UGS data delivery type.
Min. Reserved Traffic Rate (Kbps)	The minimum reserved traffic rate, in Kbps, for uplink/downlink traffic carried by the service flow. The range is 0-40000. Relevant only for service flows with the appropriate uplink/downlink data delivery type (UGS, NRTVR, RTVR, ERTVR). For NRTVER, RTVR and ERTVR-cannot be higher than the Max. Sustained Traffic Rate.

Parameter	Description
Max. Latency (ms)	The maximum latency in ms allowed in the uplink/downlink service flow. The range is 0- 4294967295. Relevant only for service flows with the appropriate uplink/downlink data delivery type (UGS, RTVR, ERTVR).
Tolerated Jitter (ms)	the maximum delay variation (jitter) in milliseconds for this uplink/downlink service flow. The range is 0- 4294967295. Relevant only for service flows with the appropriate uplink/downlink data delivery type (UGS, ERTVR).
Unsolicited Grant Interval (ms)	The nominal interval in ms between successive data grant opportunities for this uplink service flow. The range is 0-65535. Must be lower than Uplink Max. Latency. Relevant only for uplink service flows with the appropriate uplink data delivery type (UGS, ERTVR).

6.9.4.3.2.4 Reference Classification Rule Section

The Reference Classification Rule section enables managing rules for the classification of uplink and downlink traffic.

The Reference Classification Rule section includes two tables, one listing the UL Reference Classification Rules and the other listing the DL Reference Classification Rules.

Note that for VLANCS service flows the linked uplink and downlink classification rules should be the same. This is because the VLANCS classification rules define the CVID (Customer VLAN ID), that should be the same for uplink and downlink flows.

These tables include the following parameters:

Parameter	Description
UL/DL Reference Classification Rule Number	The index number of the UL or DL Reference Classification rule. An auto-sequential number from 1 up to a maximum of 6 generated automatically during rule addition.
Rule Name	The name of the associated Classification Rule. The available options include all the existing Classification Rules (see “Classification Rules Tab” on page 207). The Rule Name of an existing Reference Classification Rule cannot be modified.

The Reference Classification Rule section also includes the following buttons beneath each of the tables:

Parameter	Description
Add UL Rule / Add DL Rule	Adds a new entry to the respective table.
Delete	Deletes the selected entry (or several selected entries) from the respective table.

6.9.5 ASN-GW Keep Alive Page

The Keep Alive page enables viewing/modifying the parameters of the keep-alive mechanism between the ASN-GW and relevant BSs.

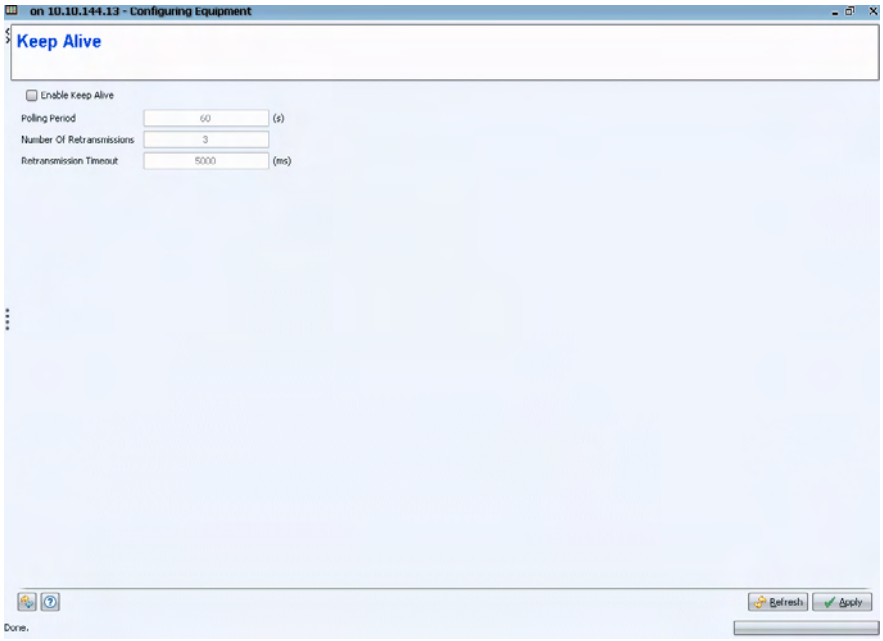


Figure 6-40: ASN-GW Keep Alive Page

The Keep Alive page includes the following parameters:

Parameter	Description
Enable Keep Alive	Use the checkbox to enable/disable the ASN-GW keep-alive mechanism. The following parameters are applicable only if Keep Alive is enabled (checked).

Parameter	Description
Polling Period	The period In seconds between polling sessions. The range is from 10 to 1000 seconds. Polling Period x 1000 (value in milliseconds) cannot be lower than Retransmission Timeout x (Number of Retransmissions+1)
Number of Retransmissions	Maximum number of retries if Retransmission Timeout has expired without getting a response. The range is from 1 to 10.
Retransmission Timeout	Time in milliseconds to wait for a response before initiating another polling attempt or reaching a decision that the polled entity has failed (if the maximum number of retries set by Number of Retransmissions has been reached). The range is from 5000 to 10000 milliseconds (5 to 10 second).

6.10 BS (not applicable for Mini-Centralized ASN-GW)

The BS node enables the configuration of various properties related to radio transmissions, connectivity and services of each BS.

The BS node includes the following subnodes and pages for each existing BS #:

- "Radio Node"
  - "Radio Basic Page"
  - "Radio Advanced Page"
- "Connectivity Node"
  - "Connectivity Basic Page"
  - "Connectivity Advanced Page"
- "Services Page"

IMPORTANT

Many BS parameters are applied only after resting the AU. This is indicated by a pop-up message. If applicable, do not forget to reset the AU after completing all modifications (refer to "AU Control Tab" on page 177).

Some BS parameters should be advertised to all neighbors. If a pop-up message indicating the need for updating neighbors appeared during modification of parameters, do not forget to update all neighbors after completing all modifications (refer to "Neighbor List" on page 233).

In addition, from the navigation tree you can create new BS entities or delete an existing BS entity:

6.10.1 Creating/Copying/Deleting a BS

To create a new BS:

1 Right-click the BS node in the navigation tree and select **Create** to open the **New BS** window.

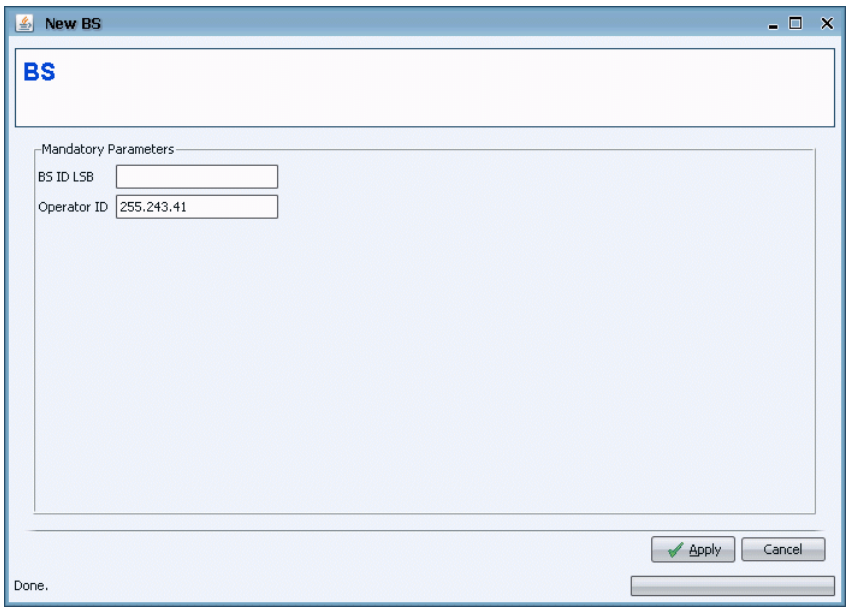


Figure 6-41: New BS Window

2 Configure the mandatory identification parameters of the BS in the New BS window:

Parameter	Description
BS ID LSB	The unique identifier of the BS. The management system will reject a BS ID LSB already assigned to another BS in the managed wireless network. The format is x.y.z, where x, y and z are in the range from 0 to 255.
Operator ID	The unique Identifier of the wireless network operator. The same Operator ID must be used by all BSs in the managed wireless network. The format is x.y.z, where x, y and z are in the range from 0 to 255. The default Operator ID is 255.243.41. Once the user enters a new ID it becomes the new default for new BSs.

3 Click OK. The new BS will be added to the list of BS # available in the BS node. Up to 28 BSs can be defined.

4 To complete the creation of the new BS you should select the newly added BS entry and complete the configuration of the mandatory Bandwidth and Central frequency parameters (see "Radio Basic Page - General Tab" on page 223). After clicking **Apply** you will be prompted to configure some additional mandatory parameters in the Airframe Structure General tab and Air Frame Structure Zones tab. After configuring the requested parameters, click **Apply** again.

To copy an existing BS:

1 The Copy BS feature enables creation of a new BS based on the configuration of an existing BS. To copy a BS, right-click the BS node in the navigation tree and select **Copy BS** to open the **BS Selector** window.

2 From the list of available BSs, select the BS you want to copy and click **Select.** The **Copy BS** window will open with the values of the source BS used for BS ID LSB and Operator ID parameters.

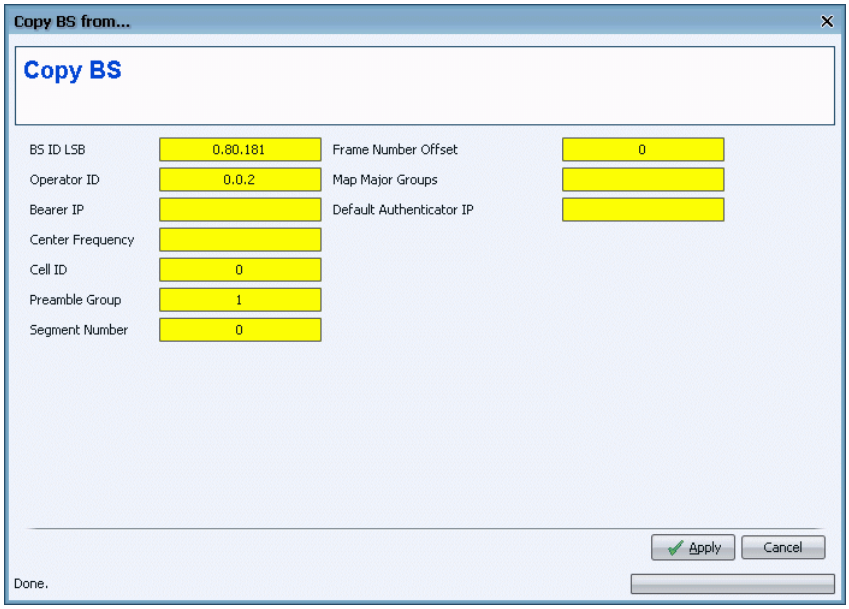


Figure 6-42: Copy Existing BS Window

3 Configure the required parameters for the new BS (all other parameters will be copied from the source BS and may be changed later):

Parameter	Description
BS ID LSB	The unique identifier of the BS. Replace the BS ID LSB of the source BS with a new value. The management system will reject a BS ID LSB already assigned to another BS in the managed wireless network. The format is x.y.z, where x, y and z are in the range from 0 to 255.
Operator ID	The unique Identifier of the wireless network operator. The same Operator ID must be used by all BSs in the managed wireless network. Typically the Operator ID (copied from the source BS) should not be changed. The format is x.y.z, where x, y and z are in the range from 0 to 255.
Bearer IP	The IP address of the bearer interface of the BS.

Parameter	Description
Center Frequency	The center of the frequency band in which the BS will transmit, in MHz. The available values, in accordance with the bands supported by different ODUs, are: ■ 2022.5 to 2217.5 in steps of 0.125 ■ 2302.5 to 2397.5 in steps of 0.125 ■ 2487.5 to 2687.5 in steps of 0.125 ■ 3302.5 to 3397.5 in steps of 0.125 ■ 3402.5 to 3597.5 in steps of 0.125 ■ 3602.5 to 3797.5 in steps of 0.125 See also note below regarding dependency on configured Bandwidth
Cell ID	The Cell ID (IDCell) used for preamble selection. The range is from 0 to 31.
Preamble Group	The preamble group (1 or 2). A value of 2 is applicable only for the following combinations of Segment Number and Cell ID values: Segment Number=0, Cell ID=0, 3, 6, 9, 12, 15. Segment Number=1, Cell ID=1, 4, 7, 10, 13, 16. Segment Number=2, Cell ID=2, 5, 8, 11, 14, 17
Segment Number	The segment (BS) number in a three sector BS (0-2). This number influences the values available for Preamble Group selection (see above) preamble selection and the configuration of Map Major Groups (see below) used for the FDC transmission.
Frame Number Offset	Controls the offset applied between the internal frame count and the reported frame number. The range is from 0 to 15.
Map Major Groups	6 bits representing the selection of Map Major Groups 0 to 5 where the left-most bit (MSB) represents Major Group 5. If BW=5 MHz, bits 1, 3 and 5 are not relevant. If Segment Number is 0, then bit #0 should be set (1). If Segment Number is 1, then bit #2 should be set (1). If Segment Number is 2, then bit #4 should be set (1).
Default Authenticator IP	The IP address of the default authenticator ASN-GW.

NOTE

The available values for Center Frequencies indicated above are for a Bandwidth of 5 MHz. For a different bandwidth, the actually valid values are from f1+1/2BW to f2-1/2BW, where f1 is the lowest frequency of the ODU's radio band, f2 is the highest frequency of the ODU's band, and BW is the configured bandwidth. Note that ODU-2305-2360-000N-36-1x1-Y-0 includes two bands: 2305-2320, 2345-2360 MHz.

To delete a BS:

To delete a BS, right-click the required BS # entry in the navigation tree and select **Delete**. You will be request to confirm the operation.

IMPORTANT

An associated BS (specified in a Site Sector Association) cannot be deleted. For more details refer to "Site Sector # Page" on page 263.

To delete a BS from its neighbors:

To delete a BS from its neighbors (without deleting it entirely), right-click the BS entry in the navigation tree and select **Delete from neighboring**.

6.10.2 Radio Node

The Radio node includes the following pages:

- "Radio Basic Page"
- "Radio Advanced Page"

6.10.2.1 Radio Basic Page

The Radio node's Basic page includes the following tabs:

- "Radio Basic Page - General Tab"
- "Radio Basic Page-Air Frame Structure General Tab"
- "Radio Basic Page-Air Frame Structure Zones Tab"
- "Radio Basic Page-Mobility Tab"

6.10.2.1.1 Radio Basic Page - General Tab

The General Tab enables defining the basic radio parameters.

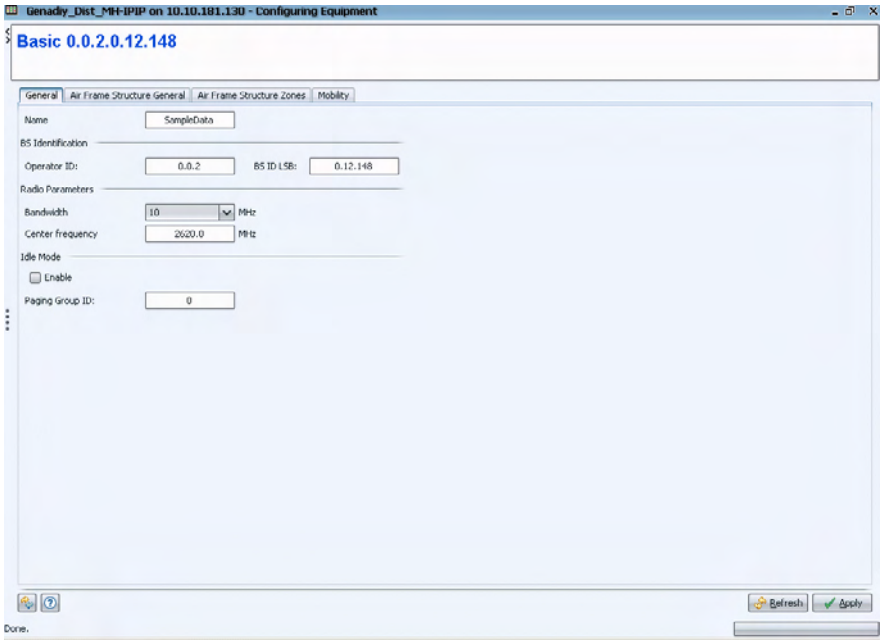


Figure 6-43: Radio Basic Page - General Tab

The General tab includes the following parameters:

Parameter	Description
Name	The name of the BS. An optional descriptive parameter. A string of up to 32 printable characters.
BS Identification	
Operator ID	Read-only. The unique operator identifier. The same Operator ID must be used by all BSs throughout the radio access network.
BS IDLSB	Read-only. The unique ID of the BS. This ID must be unique within the radio access network.
Radio Parameters	
Bandwidth	The BS channel bandwidth (5 MHz, 7 MHz, 10MHz).

Parameter	Description
Center frequency	The center of the frequency band in which the BS will transmit, in MHz. The available values, in accordance with the bands supported by different ODUs, are: ■ 2022.5 to 2217.5 in steps of 0.125 ■ 2302.5 to 2397.5 in steps of 0.125 ■ 2487.5 to 2687.5 in steps of 0.125 ■ 3302.5 to 3397.5 in steps of 0.125 ■ 3402.5 to 3597.5 in steps of 0.125 ■ 3602.5 to 3797.5 in steps of 0.125 ■ See also note below regarding dependency on configured Bandwidth
Idle Mode	
Enable	Use the checkbox to enable/disable the idle mode feature. Note: The same idle mode status must be applied for the entire network.
Paging Group ID	The Paging Group ID of the BS. Applicable only if Idle Mode is enabled. The range is from 0 to 65535. Must be set to a value other than 0 if Idle Mode is enabled. Must be unique in the network (different Paging Group ID for each BS).

NOTE

The available values for Center Frequencies indicated above are for a Bandwidth of 5 MHz. For a different bandwidth, the actually valid values are from f1+1/2BW to f2-1/2BW, where f1 is the lowest frequency of the ODU's radio band, f2 is the highest frequency of the ODU's band, and BW is the configured bandwidth. Note that ODU-2305-2360-000N-36-1x1-Y-0 includes two bands: 2305-2320, 2345-2360 MHz.

After clicking **Apply**, you may be prompted to properly configure some additional parameters in the Airframe Structure General tab and/or the Air Frame Structure Zones tab. After configuring the requested parameters, click Apply again.

In addition, following any change in the Bandwidth, delete the current Distance triggers (see "Radio Advanced Page-Mobility Tab" on page 241" and redefine them.

6.10.2.1.2 Radio Basic Page-Air Frame Structure General Tab

The Air Frame Structure General tab defines the general airframe parameters.

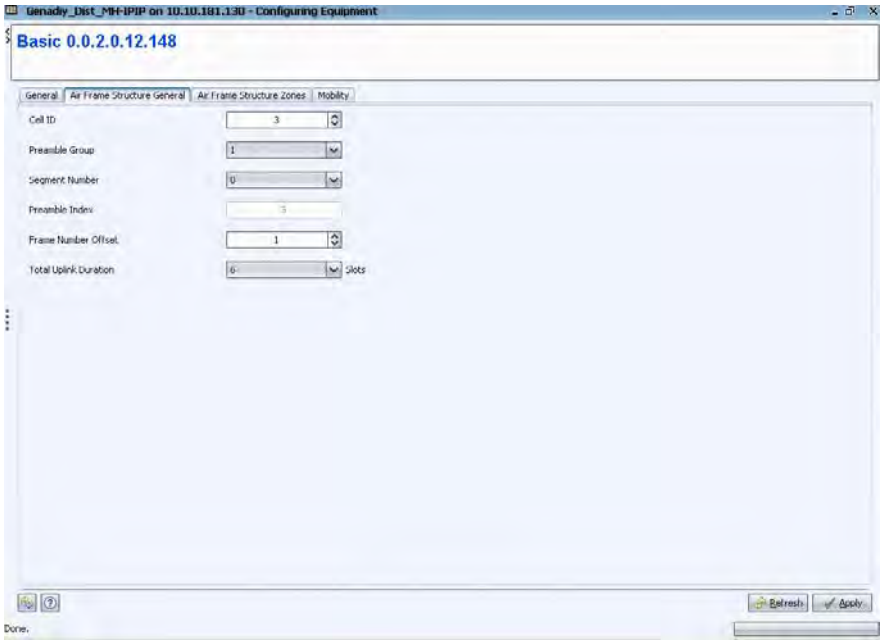


Figure 6-44: Radio Basic Page - Air Frame Structure General Tab

The Air Frame Structure General tab includes the following parameters:

Parameter	Description
Cell ID	The Cell ID (IDCell) used for preamble selection. The range is from 0 to 31.
Preamble Group	The preamble group (1 or 2). A value of 2 is applicable only for the following combinations of Segment Number and Cell ID values: Segment Number=0, Cell ID=0, 3, 6, 9, 12, 15. Segment Number=1, Cell ID=1, 4, 7, 10, 13, 16. Segment Number=2, Cell ID=2, 5, 8, 11, 14, 17
Segment Number	The segment (BS) number in a three sector BS (0-2). This number influences the values available for Preamble Group selection (see above) preamble selection and the configuration of Map Major Groups (see “Radio Basic Page-Air Frame Structure Zones Tab” on page 226) used for the FDC transmission.
Preamble Index	Read-only. The Preamble Index used by the BS (0-113).
Frame Number Offset	Controls the offset applied between the internal frame count and the reported frame number. The range is from 0 to 15.

Parameter	Description
Total Uplink Duration	The total duration of the uplink in a frame, in slots (one slot equals 3 symbols). To avoid BS-BS interference, the ul-dl-allocation must be identical in all BSs in a geographical region. The range is 4-7 for bandwidth of 5 or 10MHz, 3-5 for bandwidth of 7MHz. After each change in the Bandwidth parameter the value is changed to <blank> and must be configured to a proper value.

6.10.2.1.3 Radio Basic Page-Air Frame Structure Zones Tab

The Air Frame Structure Zones tab enables configuration of the map zone parameters.

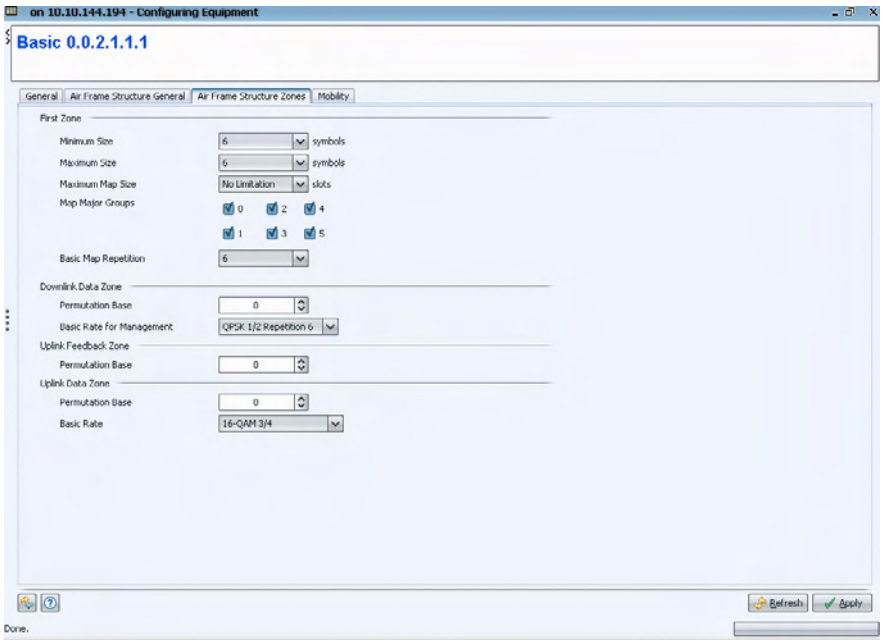


Figure 6-45: Radio Basic Page - Air Frame Structure Zones Tab

The Air Frame Structure Zones tab includes the following parameters:

Parameter	Description
First Zone	

Parameter	Description
Minimum Size	The initial size (in symbols) of the first zone. When reuse 3 is used within first zone, this parameter should be equal across all BSs within deployment. The available options are 2, 4,....34 (2xN where N=1-17) or No Limitation. See limitations in "First Zone Minimum Size Recommended Value Range" table below. Other values should be avoided.
Maximum Size	Maximum size (in symbols) for first zone. Used mainly for performance control capability within frame. The available options are 2, 4,....34 (2xN where N=1-17) or No Limitation. Maximum Size cannot be lower than Minimum Size.
Maximum Map Size	Limits the maximum size of maps (in slots). The available options are 10, 20, ...300 (10xN where N=1-30) or No Limitation.
Map Major Groups	The major groups allocated to the BS for maps transmission, as indicated by the selection of the corresponding checkboxes. If BW=5 MHz, bits 1, 3 and 5 are not relevant (grayed out). If Segment Number (see "Radio Basic Page-Air Frame Structure General Tab" on page 225) is 0, then bit #0 should be set (checked). If Segment Number is 1, then bit #2 should be set (checked). If Segment Number is 2, then bit #4 should be set (checked).
Basic Map Repetition	The basic repetition used in the transmission of the maps using QPSK 1/2. The available options are 1, 2, 4 and 6. (1 means no repetitions).
Downlink Data Zone	
Permutation Base	The permutation base used in the downlink data zone. The valid range is from 0 to 31.

Parameter	Description
Basic Rate for Management	The downlink basic rate for management. ■ QPSK 1/2 Repetition 6 ■ QPSK 1/2 Repetition 4 ■ QPSK 1/2 Repetition 2 ■ QPSK 1/2 ■ QPSK 3/4 ■ 16-QAM 1/2 ■ 16-QAM 3/4 ■ 64-QAM 1/2 ■ 64-QAM 2/3 ■ 64-QAM 3/4 ■ 64-QAM 5/6 The default is QPSK 1/2 Repetition 6
Uplink Feedback Zone	
Permutation Base	The permutation base used in the uplink feedback zone. The valid range is from 0 to 69.
Uplink Data Zone	
Permutation Base	The permutation base used in the uplink data zone. The valid range is from 0 to 69.

Parameter	Description
Basic Rate	The uplink basic rate. ■ QPSK 1/2 Repetition 6 ■ QPSK 1/2 Repetition 4 ■ QPSK 1/2 Repetition 2 ■ QPSK 1/2 ■ QPSK 3/4 ■ 16-QAM 1/2 ■ 16-QAM 3/4 ■ 64-QAM 1/2 ■ 64-QAM 2/3 ■ 64-QAM 3/4 ■ 64-QAM 5/6 The default is QPSK 1/2

Recommended values for First Zone Minimum Size and Maximum Size:

Table 6-5: First Zone Minimum Size Recommended Value Range

Bandwidth (MHz)	First Zone Scheme*	Basic Map Repetition	Minimum Size (symbols) (up to a maximum of Y as defined below)
7/10	Full Loading	6	No Limitation or 8+2N
		4	No Limitation or 6+2N
		2	No Limitation or 4+2N
		1	No Limitation or 4+2N
	Reuse 1/3	6	N/A (non trivial configuration)
		4	8+2N
		2	6+2N
		1	6+2N
5 MHz	Full Loading	6	N/A (non trivial configuration)
		4	No Limitation or 8+2N
		2	No Limitation or 6+2N
		1	No Limitation or 4+2N
	Reuse 1/3	6	N/A (non trivial configuration)
		4	N/A (non trivial configuration)
		2	N/A (non trivial configuration)
		1	N/A (non trivial configuration)

* First Zone Scheme is being determined by the selected Map Major Groups:

- For 7/10 MHz Full Loading means all Major Groups (0-5) are selected.
- For 5MHz Full Loading means that all relevant Major Groups (0, 2, 4) are selected.

For First Zone Maximum Size the values are:

- If First Zone Minimum Size is set to No Limitations, the value range for Maximum Size is the same as for Minimum Size.
- Else, the value range is No Limitations or First Zone Minimum Size+2N, up to a maximum of Y as defined below.

The value of Y that sets the upper limit for the Minimum and Maximum Size parameters depends on the Maximum Cell Radius and Total Uplink Duration parameters, using the following formula:

Y=A-3*(Total Uplink Duration)-(Extra TTG),
where A=46 for BW of 5 or 10 MHz, and 32 for BW of 7 MHz.

Table 6-6: Calculating the Upper Limit Value (Y) for Minimum and Maximum Size

Bandwidth (MHz)	Maximum Cell Radius	Total Uplink Duration (slots)	Extra TTG (symbols)
5/10	1, 2, 4, 8	4, 6	0
	1, 2, 4, 8, 15, 23	5, 7	1
	15, 23, 30	4, 6	2
	30	5, 7	3
7	1, 2, 4, 8, 15, 23	4	0
	1, 2, 4, 8, 15, 23, 30	3, 5	1
	30	4	2

6.10.2.1.4 Radio Basic Page-Mobility Tab

The Mobility tab enables defining the handover negotiation parameters.

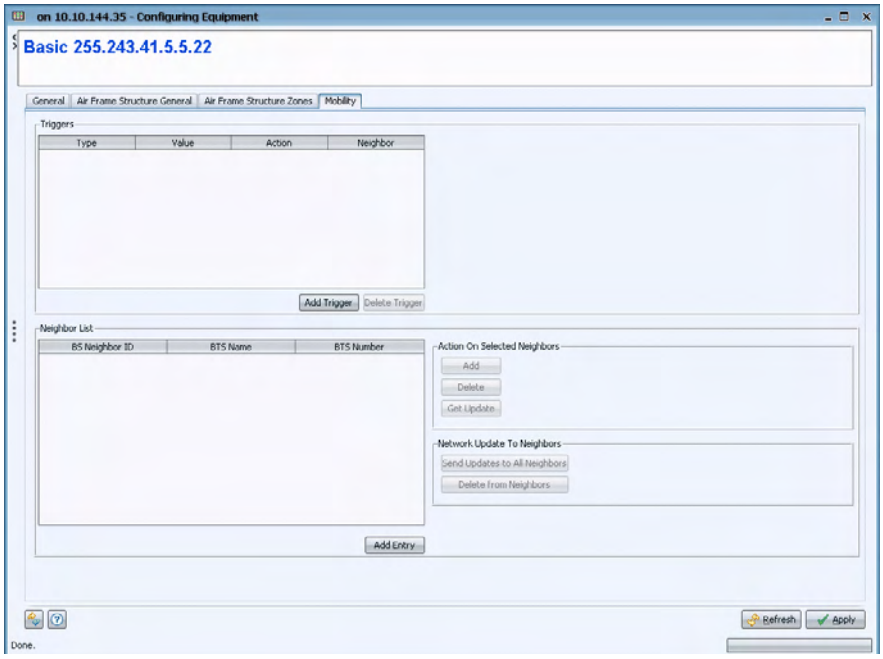


Figure 6-46: Radio Basic Page - Mobility Tab

The Mobility tab includes the following sections:

- "Triggers"
- "Neighbor List"

6.10.2.1.4.1 Triggers

The Triggers table includes the following parameters for each entry:

Parameter	Description
Type	The type of trigger.
Value	The threshold value for the Trigger.
Action	The action to be triggered when the relevant values goes above/below the threshold. The available options depend on the selected Type.
Neighbor	Applicable only for triggers with Handover Action. The neighbor(s) for whom the rule defined by the previous parameters is applicable: General (for all neighbors) or a specific neighbor (from the Neighbor List).

The Triggers table also includes the following buttons:

Parameter	Description
Add Trigger	Adds a new entry to the Triggers table.
Delete Trigger	Deletes one or several selected entries from the Triggers table.

The Type, Action and Neighbor of an existing Trigger entry cannot be modified. In existing Triggers entries only the Value can be modified.

The following table provides description, possible Actions and value range for each Trigger Type:

Trigger Type	Possible Actions	Trigger Condition	Possible Values
Own CINR <	Scan Request Handover Request	The CINR at the Serving BS is below the Trigger threshold (in dB)	-64 to 63.5 in steps of 0.5
Neighnor CINR >	Handover Request	The CINR at the Neighbour BS is above the Trigger threshold (in dB)	-64 to 63.5 in steps of 0.5

Trigger Type	Possible Actions	Trigger Condition	Possible Values
Neighbor CINR-Own CINR >	Handover Request	The CINR at the Neighbour BS minus the CINR at the Serving BS is above the Trigger threshold (in dB)	-64 to 63.5 in steps of 0.5
Own RSSI <	Scan Request Handover Request	The RSSI at the Serving BS is below the Trigger thresholdd (in dBm)	-103.75 to -40 in steps of 0.25
Neighbor RSSI >	Handover Request	The RSSI at the Neighbour BS is above the Trigger threshold (in dBm)	-103.75 to -40 in steps of 0.25
Neighbor RSSI-Own RSSI >	Handover Request	The RSSI at the Neighbour BS minus the RSSI at the Serving BS is above the Trigger threshold (in dBm)	-32 to 31.75 in steps of 0.25
Distance	Scan Request Handover Request	The Serving BS distance from the MS (calculated by measuring the round trip delay) is above the Trigger threshold (in meter)	0-3400 in steps of 50 if BS BW is 10 MHz, 0-6800 in steps of 50 if BS BW is 5 MHz, 0-4800 in steps of 50 if BS BW is 7 MHz

Note: Following any change in Bandwidth, the existing Distance triggers must be deleted and redefined.

6.10.2.1.4.2 Neighbor List

The Neighbor List includes the following read-only parameters for each Neighbor BS:

Parameter	Description
BS Neighbor ID	The BS ID LSB of the Neighbour BS.
BTS Name	The name of the Neighbor BS site.
BTS Number	The BTS Name (Site ID) of the Neighbor BS site.

The Neighbor List also includes the following buttons:

Button	Description
Add Entry	Opens the BS Selector window that enables selection of one or several new candidate neighbors. The selected neighbors appears in the neighbor list, however the new neighbors are not actually added until the Add Neighboring Task is executed.
Action on Selected Neighbors	
Add	Opens the Add Neighboring Task that allows addings the selected BS(s) to the neighbor list of the current BS.
Delete	Opens the Delete Neighboring Task that allows deleting the selected BS(s) and their details from the neighbor list of the current BS.
Get Update	Opens the Get Update Neighboring Task that allows getting an update from the selected Neighbor BS sites, regarding their current parameters' values.
Network Update To Neighbors	
Send Updates to All Neighbors	Opens the Send Update to All Neighbors Neighboring Task that allows sending updates regarding this BS to all or selected Neighbor BSs.
Delete from Neighbors	Opens the Delete from Neighbors Neighboring Task that allows deleting the current BS and its details from the Neighbor Lists of all or selected Neighbor BSs.

The Neighboring Task enables the BSs that will participate in a one-time task according to the selected operation.

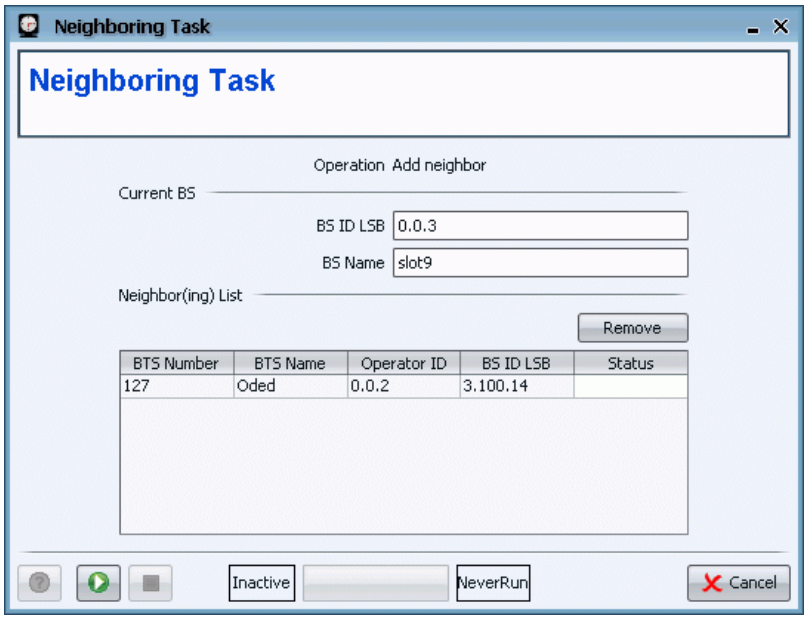


Figure 6-47: Neighboring Task (Operation Add Neighbor)

The Neighboring Task includes the following components:

Parameter	Description
Operation	The operation to be executed, according to the button that initiated the task: ■ Add neighbor. ■ Delete neighbors ■ Get Update ■ Send Update to Neighboring ■ Delete from Neighboring
Current BS	The BS ID LSB and BS Name of the current BS.
Neighboring List	The details of neighboring BSs that will participate in the task. The initial list includes the BSs that where selected when the task was initiated. You may use the Remove button to remove selected BS(s) from the list. The details for each neighboring BS in the list includes its ID (BS ID LSB), Site Name and Site ID (Site Number).

Refer also to "Mass Neighboring Task" on page 298.

6.10.2.2 Radio Advanced Page

The Radio Advanced page includes the following tabs:

- "Radio Advanced Page-Feedback Tab"
- "Radio Advanced Page-Diversity Tab"
- "Radio Advanced Page-Power Control Tab"
- "Radio Advanced Page-Mobility Tab"
- "Radio Advanced Page-Management Tab"
- "Radio Advanced Page-QoS Tab"

6.10.2.2.1 Radio Advanced Page-Feedback Tab

The Feedback tab enables defining various ranging parameters.

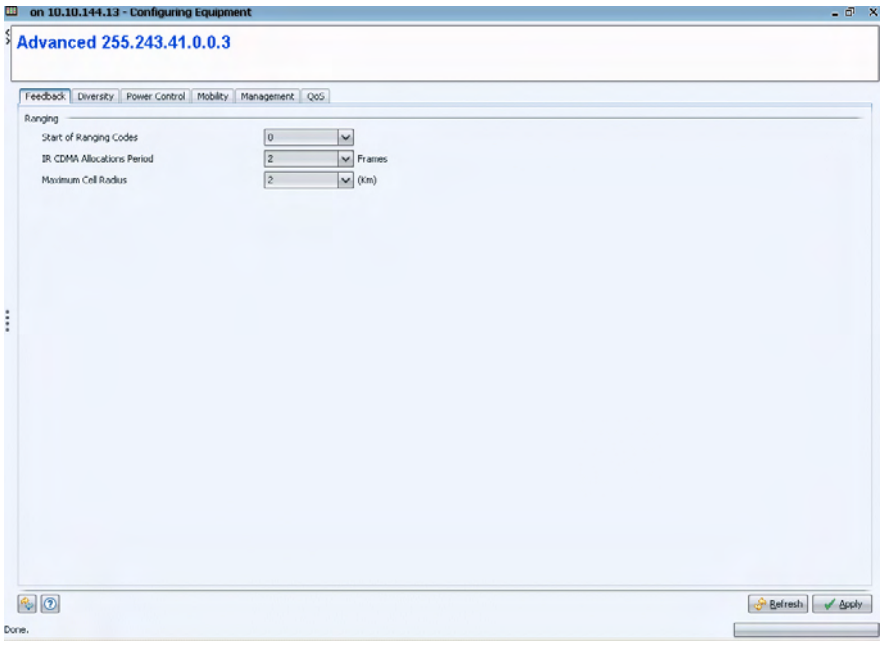


Figure 6-48: Radio Advanced Page - Feedback Tab

The Feedback tab includes the following ranging parameters:

Parameter	Description
Start of Ranging Codes	The starting number of the group of codes used for the uplink. The avilable options are 0, 64, 128, 192.
IR CDMA Allocation Period	The period of IR CDMA allocations, in frames. The available options are 1, 2, 4, 6, 8, 10.
Maximum Cell Radius	The naximum cell radius (in km). The available values are 1, 2, 4, 8, 15, 23. 30.

6.10.2.2.2 Radio Advanced Page-Diversity Tab

The Diversity tab enables configuration of the Airframe Downlink Diversity parameters.

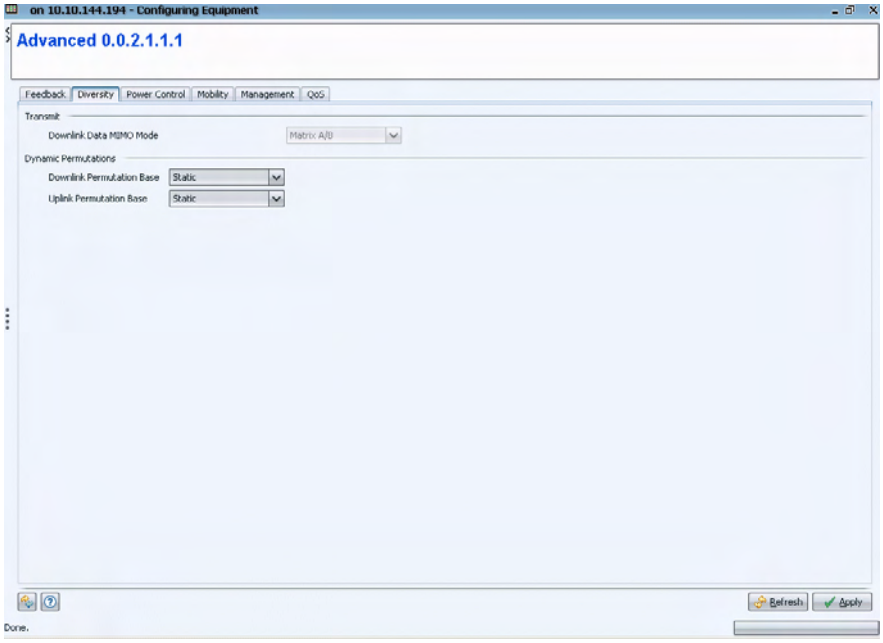


Figure 6-49: Radio Advanced Page - Diversity Tab

The Diversity tab includes the following sections:

- "Transmit"
- "Dynamic Permutations"

6.10.2.2.2.1 Transmit

The Transmit section includes the following parameter:

Parameter	Description
Downlink Data MIMO Mode	Read-only. The diversity mode used in downlink transmissions (Matrix A/B).

6.10.2.2.2.2 Dynamic Permutations

The Dynamic Permutations section includes the following parameters:

Parameter	Description
Downlink Permutation Base	Indicates whether the same downlink permutation base is used over all frames (Static or Dynamic).
Uplink Permutation Base	Indicates whether the same uplink permutation base is used over all frames (Static or Dynamic).

6.10.2.2.3 Radio Advanced Page-Power Control Tab

The Power Control tab enables defining the target noise and interference levels.

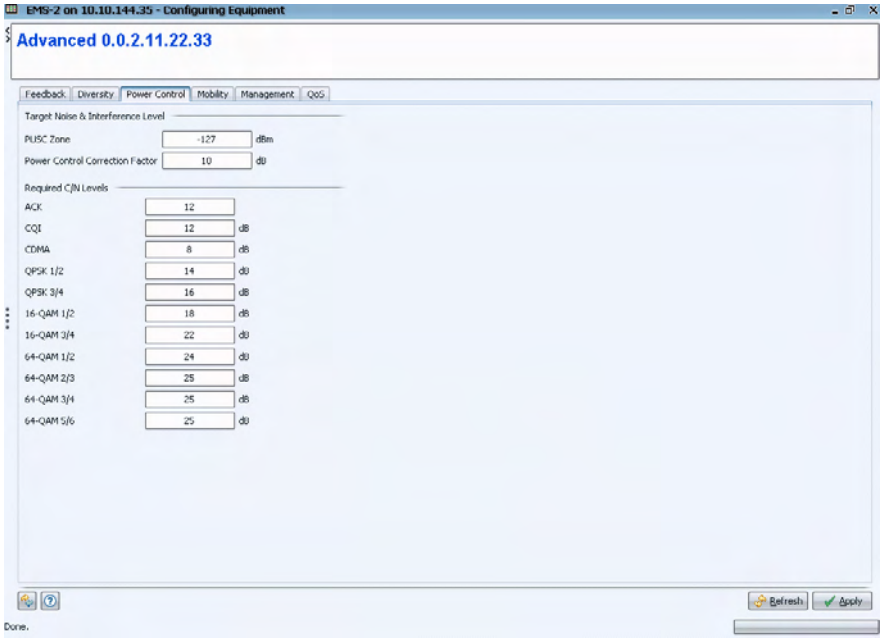


Figure 6-50: Radio Advanced Page - Power Control Tab

The Power Control tab includes the following parameters:

Parmeter	Description
Target Noise & Interference Level	
PUSC Zone	The target noise and interference level for the PUSC zone, in dBm. The range is from -130 to -110 in steps of 0.5 (dBm).

Parmeter	Description
Power Control Correction Factor	Correction (in dB) of max allowed UL SINR given DL SINR measurement. The higher the correction factor is, the higher is the allowed UL Tx Power. The range is from -20 to 30 in steps of 0.1 (dBm).
Required C/N Levels	
ACK	The C/N in dB required for sending ACK, reported to the MS for power control purposes. The range is from -20 to 50 (dB).
CQI	The C/N in dB required for sending CQI, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for ACK - 8 to Required C/N Level for ACK + 7 (see ACK parameter above.
CDMA	The C/N in dB required for transmitting CDMA, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for CQI - 8 to Required C/N Level for CQI + 7 (see CQI parameter above.
QPSK 1/2	The C/N in dB required for sending QPSK 1/2, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for CDMA - 16 to Required C/N Level for CDMA + 14 (see CDMA parameter above.
QPSK 3/4	The C/N in dB required for sending QPSK 3/4, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for QPSK 1/2 - 16 to Required C/N Level for QPSK 1/2 + 14 (see QPSK 1/2 parameter above.
16-QAM 1/2	The C/N in dB required for transmitting 16-QAM 1/2, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for QPSK 3/4 - 8 to Required C/N Level for QPSK 3/4 + 7 (see QPSK 3/4 parameter above.

Parmeter	Description
16-QAM 3/4	The C/N in dB required for sending 16-QAM 3/4, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for 16-QAM 1/2 - 16 to Required C/N Level for 16-QAM 1/2 + 14 (see 16-QAM 1/2 parameter above.
64-QAM 1/2	The C/N in dB required for sending 64-QAM 1/2, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for 16-QAM 3/4 - 16 to Required C/N Level for 16-QAM 3/4 + 14 (see 16-QAM 3/4 parameter above.
64-QAM 2/3	The C/N in dB required for sending 64-QAM 2/3, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for 64-QAM 1/2 - 8 to Required C/N Level for 64-QAM 1/2 + 7 (see 64-QAM 1/2 parameter above.
64-QAM 3/4	The C/N in dB required for sending 64-QAM 2/3, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for 64-QAM 2/3 - 8 to Required C/N Level for 64-QAM 2/3 + 7 (see 64-QAM 2/3 parameter above.
64-QAM 5/6	The C/N in dB required for transmitting 64-QAM 5/6, reported to the MS for power control purposes. The range is from -20 to 50 (dB). Must be in the range from Required C/N Level for 64-QAM 3/4 - 8 to Required C/N Level for 64-QAM 3/4 + 7 (see 64-QAM 3/4 parameter above.

6.10.2.2.4 Radio Advanced Page-Mobility Tab

The Mobility tab enables defining various handover negotiation parameters, including Trigger setup, TBS settings, and neighbor advertisement broadcast settings.

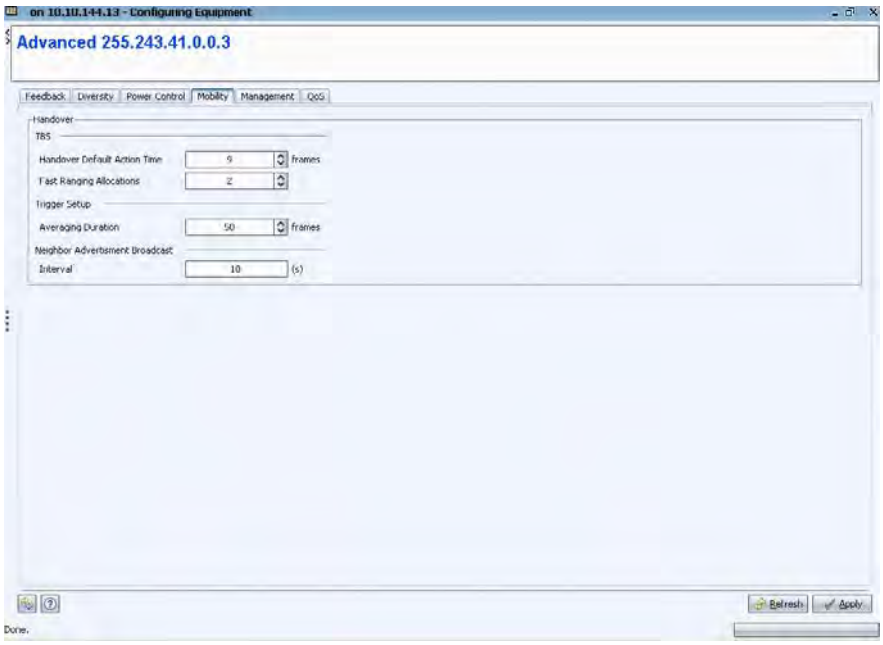


Figure 6-51: Radio Advanced Page - Mobility Tab

The Mobility tab includes the following sections:

- "TBS"
- "Trigger Setup"
- "Neighbor Advertisement Broadcast"

6.10.2.2.4.1 TBS

The TBS (Target BS) section includes the following parameters:

Parameter	Description
Handover Default Action Time	The number of frames until allocation of non-contention based opportunity at a target BS. The range is from 0 to 255.

Parameter	Description
Fast Ranging Allocations	The number of frames until allocation of non-contention based opportunity at a target BS. The range is from 0 to 255.

6.10.2.2.4.2 Trigger Setup

The Trigger Setup section includes the following parameter:

Parameter	Description
Averaging Duration	The default RSSI average duration for triggers, in frames The range is from 1 to 255 frames.

6.10.2.2.4.3 Neighbor Advertisement Broadcast

The Neighbor Advertisement Broadcast section includes the following parameter:

Parameter	Description
Interval	The periodic NBRADV transmission interval, in seconds. The range is from 0 to 100 in steps of 0.1.

6.10.2.2.5 Radio Advanced Page-Management Tab

The Management tab enables defining alarm threshold parameters.

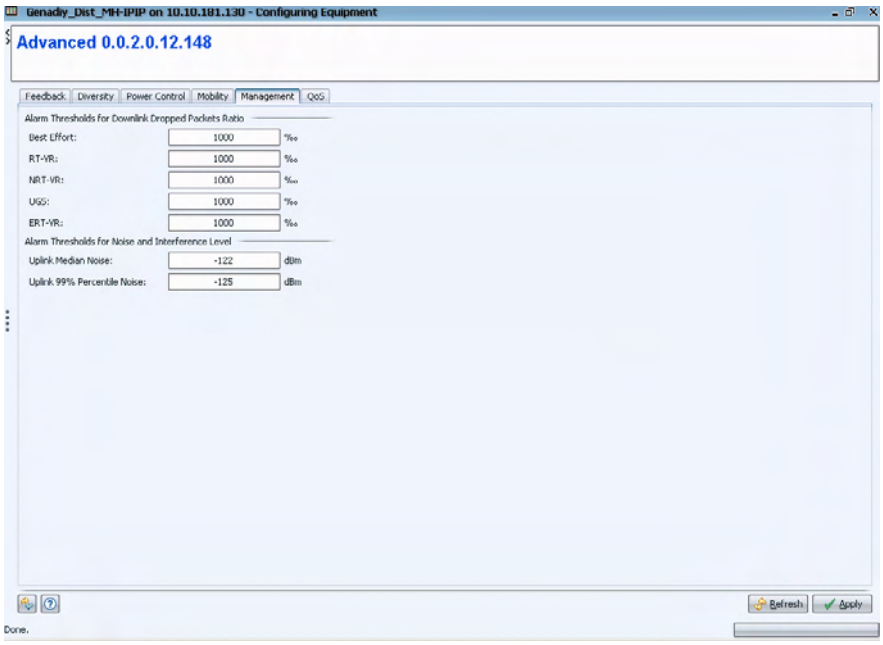


Figure 6-52: Radio Advanced Page - Management Tab

The Management tab includes the following parameters:

Parameter	Description
Alarm Thresholds for Downlink Dropped Packets Ratio	
Best Effort	The threshold for excessive DL dropped packets ratio (in promils), of DL packets in all Best Effort services, which when exceeded triggers a Best Effort service alarm. The range is from 1 to 1000 (promil).
RT-VR	The threshold for excessive DL dropped packets ratio (in promils), of DL packets in all RT-VR services, which when exceeded triggers an RT-VR service alarm. The range is from 1 to 1000 (promil).
NRT-VR	The threshold for excessive DL dropped packets ratio (in promils), of DL packets in all NRT-VR services, which when exceeded triggers an NRT-VR service alarm. The range is from 1 to 1000 (promil).
UGS	The threshold for excessive DL dropped packets ratio (in promils), of DL packets in all UGS services, which when exceeded triggers a UGS service alarm. The range is from 1 to 1000 (promil).

Parameter	Description
ERT-VR	The threshold for excessive DL dropped packets ratio (in promils), of DL packets in all ERT-VR services, which when exceeded triggers an ERT-VR service alarm. The range is from 1 to 1000 (promil).
Alarm Thresholds for noise and interference level	
Uplink Median Noise	The uplink median noise level represents the median value of the noise floor histogram.If the measured uplink median noise level exceeds the value calculated as the target noise and interference level for the PUSC Zone (see “Radio Advanced Page-Power Control Tab” on page 238) plus the value of the Uplink Median Noise parameter, .an excessive uplink median noise alarm will be generated. The range is from -135 to -100 (dBm).
Uplink 99% Percentile Noise	he uplink 99% noise level represents the 99% value of the noise floor histogram.If the uplink 99% noise level exceeds the value calculated as the target noise and interference level for the PUSC Zone (see “Radio Advanced Page-Power Control Tab” on page 238) plus the value of the Uplink 99% Percentile Noise parameter, an excessive uplink 99% percentile noise alarm will be generated. The range is from -135 to -100 (dBm).

6.10.2.2.6 Radio Advanced Page-QoS Tab

The QoS tab enables defining QoS management parameters for scheduling uncommitted traffic (above the maximum reserved rate).

Scheduling uncommitted traffic can be done using one of the following options:

- Equal Time (ET) scheduling mode, in which air resources are being scheduled in a fair manner proportional to the users' excess traffic (maximum sustained rate - maximum reserved rate) SLAs.

- Equal Rate (ER) scheduling mode, in which air resources are allocated to users aiming at ensuring data rate fairness between users proportional to their excess traffic SLAs.

Assuming a sector with diversity (different channels conditions) of active users, ET scheme enables higher aggregate sector throughput at the expense of data-rate fairness among users, while ER scheduling scheme ensures maximum data-rate fairness among users at the expense of lower aggregate sector throughput.

Using ER scheduling scheme exposes the system to excessive allocation of air resources to highly active users having relatively poorer channel conditions. To

ensure data-rate fairness, more resources will to be allocated to these users compared to users with relatively good channel conditions. The effect of a small number of such users within the sector will be reflected by reduced aggregate sector throughput as well as degradation of achievable rates for all users.

To protect against “abusing” users, an instantaneous rate threshold can be defined within the scheduling scheme in which the amount of air resources for users with continuous instantaneous rate below the threshold is being limited. The more the abusing users' instantaneous rate is below the threshold, the more resource allocations limitation is applied.

Three levels of dynamic protection are available:

- No protection.
- Low protection level - Protection against users with very poor channel conditions. Should be used where the abusing users instantaneous rates are far below the average instantaneous rate within the sector.
- Medium protection - Protection against users with relatively poor or very poor channel conditions. Should be used where the abusing users instantaneous rates are below or far below the average instantaneous rate within sector.

A dynamic protection mechanism is implemented, in which the mechanism of limiting resource allocations is automatically and dynamically activated when needed.

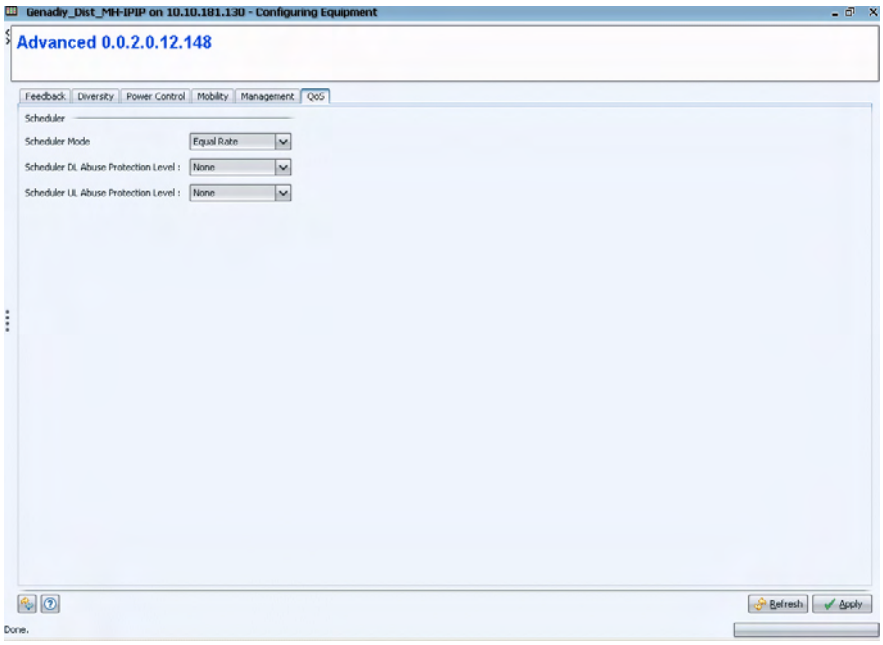


Figure 6-53: Radio Advanced Page - QoS Tab

The QoS tab includes the following parameters:

Parameter	Description
Scheduler Mode	The basis for allocating excess bandwidth among relevant users: ■ Equal Rate: Throughput Fairness ■ Equal Time: Resource Fairness The selected mode is applicable for both uplink and downlink schedulers.
Scheduler DL Abuse Protection Level	Applicable only if the selected Scheduler Mode is Equal Rate. None: No Protection Low: Limit the DL resources allocated to MSs with very low DL transmission Rate. Medium: Limit the DL resources allocated to MSs with low and very low DL transmission Rate.

Parameter	Description
Scheduler UL Abuse Protection Level	Applicable only if the selected Scheduler Mode is Equal Rate. None: No Protection Low: Limit the UL resources allocated to MSs with very low UL transmission Rate. Medium: Limit the UL resources allocated to MSs with low and very low UL transmission Rate.

6.10.3 Connectivity Node

The Connectivity Node includes the following pages:

- "Connectivity Basic Page"
- "Connectivity Advanced Page"

6.10.3.1 Connectivity Basic Page

The Connectivity node's Basic page includes the following tabs:

- "Connectivity Basic Page-Bearer Tab"
- "Connectivity Basic Page-Authentication Tab"

6.10.3.1.1 Connectivity Basic Page-Bearer Tab

The Bearer tab enables defining the Bearer Interface of the BS parameters.

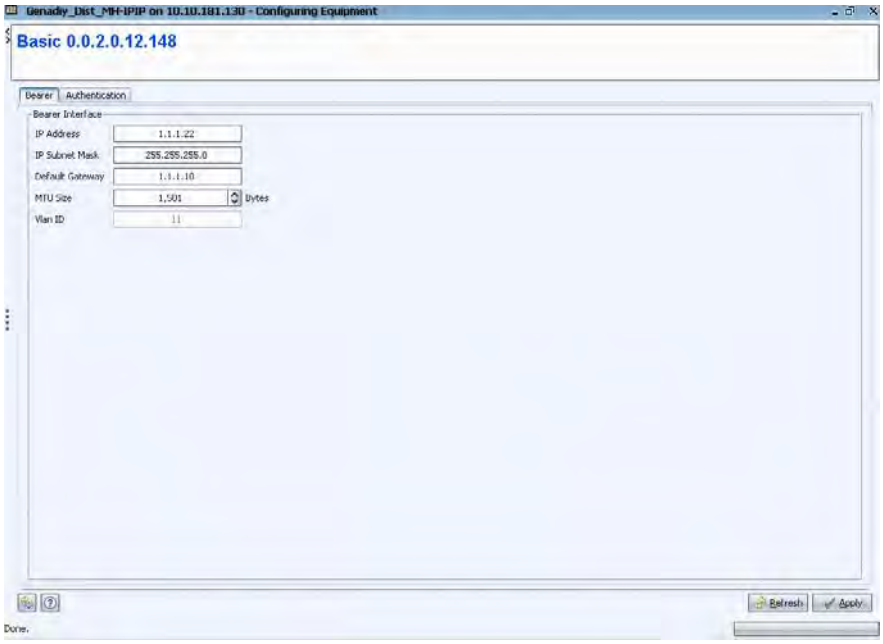


Figure 6-54: Connectivity Basic Page - Bearer Tab

The Bearer tab includes the following parameters:

Parameter	Description
IP Address	The IP address of the bearer interface of the BS. Must be unique in the nework. All BS bearer interfaces of the unit should be in the same subnet, together with the NPU's bearer interface (in Distributed ASN-GW Topolgy).
IP Subnet Mask	The IP subnet mask of the bearer interface of the BS.
Default Gateway	The IP address of the default gateway of the bearer interface of the BS. Must be in the same subnet with the BS bearer IP Address.
MTU Size	The MTU size (in bytes) of the bearer interface of the BS. The range is 1500-9000.
VLAN ID	Read-only. The VLAN ID of the bearer interface of the BS. Equal to the NPU Bearer VLAN ID (see "L1/L2 Connectivity Page" on page 140).

6.10.3.1.2 Connectivity Basic Page-Authentication Tab

The Authentication tab enables defining the authenticator IP address and the authentications thresholds for connectivity.

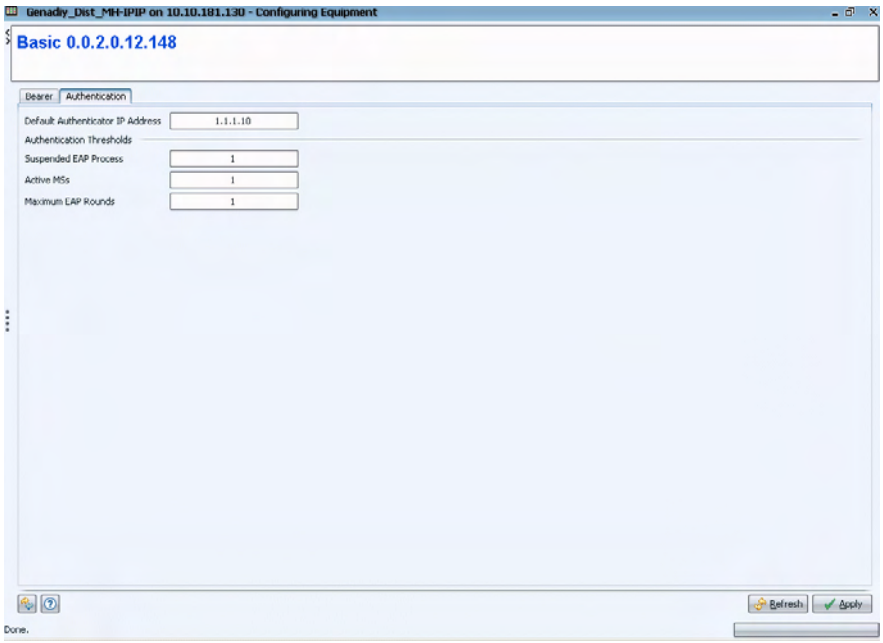


Figure 6-55: Connectivity Basic Page - Authentication Tab

The Authentication tab includes the following parameters:

Parameter	Description
Default Authenticator IP Address	The IP address of the default authenticator ASN GW. In Distributed ASN-GW Topology this is typically the IP address of the NPU's Bearer interface.
Authentication Thresholds	
Suspended EAP Process	Suspended EAP authentification process threshold. It is used to set an alarm. The range is 0-10000.
Active MSs	The threshold for the number of MSs in active operation state (not Idle) served by the BS. Exceeding this threshold sets the alarm "Excessive MS number". The range is 0-1024. When set to 0, the alarm is disabled.

Parameter	Description
Maximum EAP Rounds	The threshold for the number of EAP rounds in one direction in the same EAP session. When this threshold is exceeded, alarm is set. This threshold may be used to protect the system from hazard EAP sessions with extreme number of messaging round trips. The range is 0-100. When set to 0, the alarm is disabled.

6.10.3.2 Connectivity Advanced Page

The Connectivity node's Advanced page includes the following tabs:

- "Connectivity Advanced Page-ID-IP Mapping Tab"
- "Connectivity Advanced Page-QoS Marking Rules Tab"
- "Connectivity Advanced Page-Keep Alive Tab"

6.10.3.2.1 Connectivity Advanced Page-ID-IP Mapping Tab

The ID-IP Mapping tab enables defining entries in the ID-IP Mapping table.

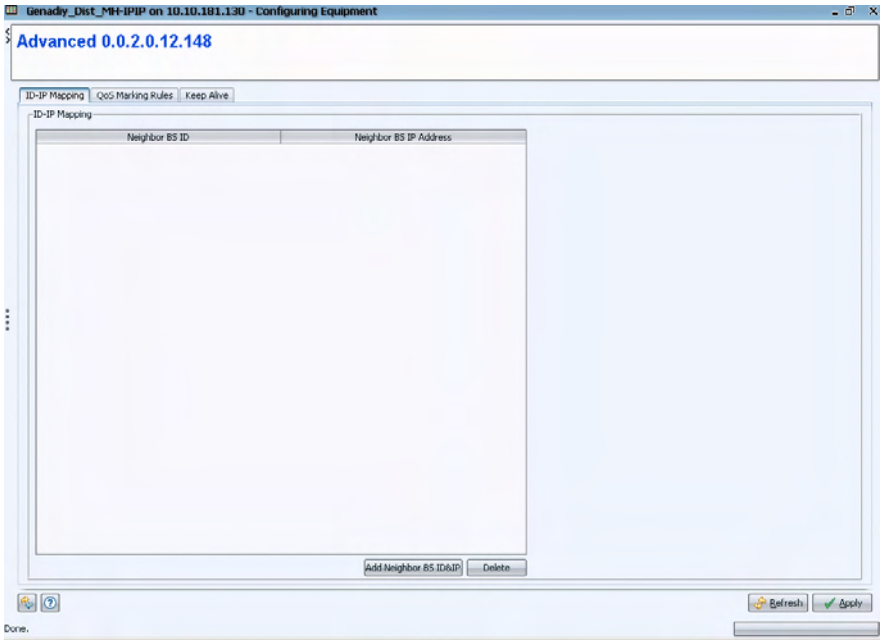


Figure 6-56: Connectivity Advanced Page - ID-IP Mapping Tab

The ID-IP Mapping table includes the following parameters for each ID-IP mapping entry:

Parameter	Description
Network Node ID	The ID of the Next Hop (Network Node) BS. BS ID LSB in the format x.x.x (x=0-255).
Network Node IP Address	The IP address of the Next Hop (Network Node) BS.

The ID-IP Mapping table also includes the following buttons:

Parameter	Description
Add Neighbor BS ID&IP	Adds an entry to the ID-IP Mapping table.
Delete	Removes the selected entry from the table.

6.10.3.2.2 Connectivity Advanced Page-QoS Marking Rules Tab

The QoS Marking Rules tab enables defining Bearer Plan QoS rules.

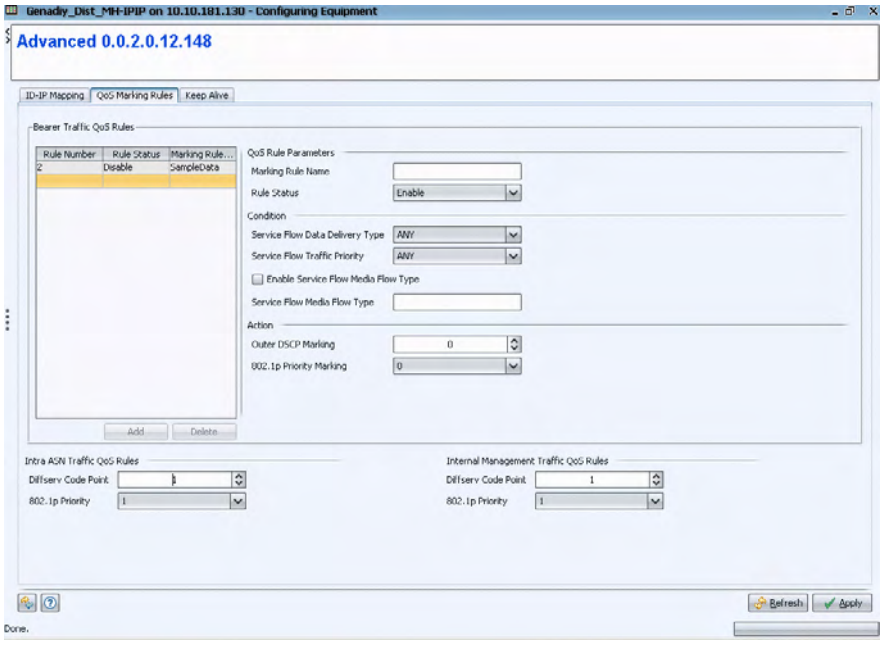


Figure 6-57: Connectivity Advanced Page-QoS Marking Rules Tab

The QoS Marking Rules tab includes the following sections:

- "Bearer Traffic QoS Rules"
- "Intra ASN Traffic QoS Rules"
- "Internal Management Traffic QoS Rules"

6.10.3.2.2.1 Bearer Traffic QoS Rules

The Bearer Traffic QoS Rules section includes the Bearer Traffic QoS Rules table and the QoS Rule Parameters Editor.

The Bearer Traffic QoS Rules table displays the following read-only parameters for each existing QoS rule:

Parameter	Description
Rule Number	The index number of the rule. An auto-sequential number generated automatically when creating a new rule.
Rule Status	The status of the rule (Enable or Disable).
Marking Rule	The name of the QoS Marking Rule

Select an entry to open the Editor for the selected rule.

The following buttons are available below the table.:

Parameter	Description
Add	Adds a new entry to the table and opens the Editor, allowing to configure parameters for the new rule.. Up to a maximum of 16383 rules can be defined.
Delete	Deletes the selected entry (or several selected entries) from the table.

The QoS Rule Parameters Editor includes the following parameters:

Parameter	Description
QoS Rule Parameters	
Marking Rule Name	The name of the QoS Marking Rule. An optional s string of up to 32 characters.
Rule Status	The status of the rule (Enable or Disable).
Condition	

Parameter	Description
Service Flow Data Delivery Type	The Service Flow Type for data delivery services: uGS, rTVR, nRTVR, BE, eRTVR, or ANY.
Service Flow Traffic Priority	The priority of Service Flow traffic. 0-7 or ANY.
Enable Service Flow Media Flow Type	Indicates whether the condition for Service Flow Media Flow Type is enabled or disabled. If enabled, the Service Flow Media Flow Type will be considered. when looking for a match.
Service Flow Media Flow Type	The Service Flow Media Flow Type, as defined in ASN-GW or AAA server.
Action	
Outer DSCP Marking	The DSCP value to be used for marking the outer IP header (IP/GRE). The range is 0-63.
802.1p Priority Marking	The 802.1p priority to be used for marking traffic. The range is 0-7.

6.10.3.2.2.2 Intra ASN Traffic QoS Rules

The Intra ASN Traffic QoS Rules section includes the following parameters:

Parameter	Description
Diffserv Code Point	DSCP priority value to be used for marking of intra-ASN (R8/R6) traffic. The range is 0-63.
802.1p Priority	802.1p priority value to be used for marking of intra-ASN (R8/R6) traffic. The range is 0-7.

6.10.3.2.2.3 Internal Management Traffic QoS Rules

The Internal Management Traffic QoS Rules section includes the following parameters:

Parameter	Description
Diffserv Code Point	DSCP priority value to be used for marking of internal management traffic. The range is 0-63.
802.1p Priority	802.1p priority value to be used for marking of internal management traffic. The range is 0-7.

6.10.3.2.3 Connectivity Advanced Page-Keep Alive Tab

The Keep Alive page enables viewing/modifying the parameters of the keep-alive mechanism between the BS and relevant ASN-GWs.

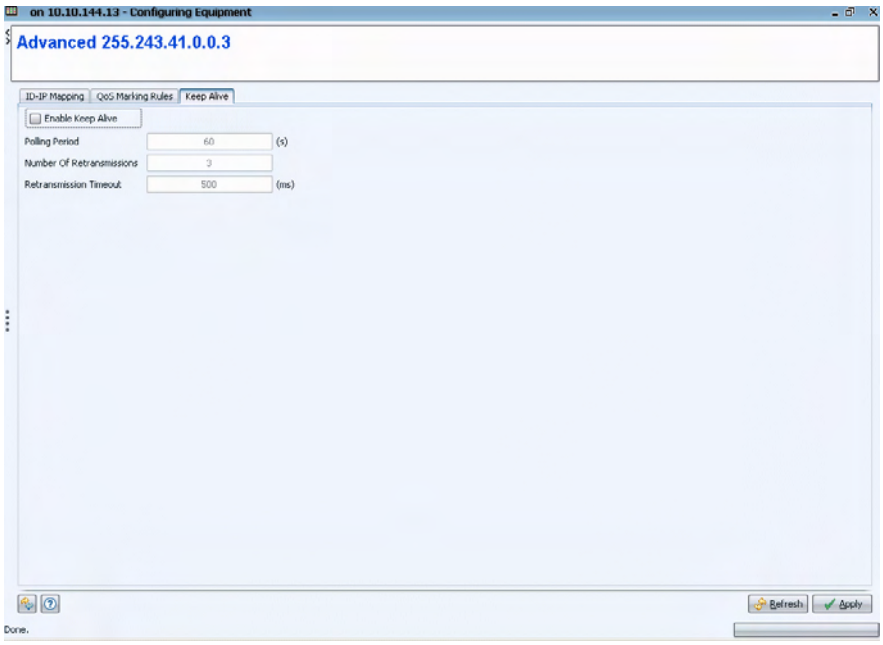


Figure 6-58: Connectivity Advanced Page - Keep Alive Tab

The Keep Alive page includes the following parameters:

Parameter	Description
Enable Keep Alive	Use the checkbox to enable/disable the BS keep-alive mechanism. The following parameters are applicable only if Keep Alive is enabled (checked).
Polling Period	The period In seconds between polling sessions. The range is from 10 to 1000 seconds. Polling Period x 1000 (value in milliseconds) cannot be lower than Retransmission Timeout x (Number of Retransmissions+1)
Number of Retransmissions	Maximum number of retries if Retransmission Timeout has expired without getting a response. The range is from 1 to 10.
Retransmission Timeout	Time in milliseconds to wait for a response before initiating another polling attempt or reaching a decision that the polled entity has failed (if the maximum number of retries set by Number of Retransmissions has been reached). The range is from 100 to 10000 milliseconds (0.1 to 10 second).

6.10.4 Services Page

The Services page enables you to define the BS Service parameters that affect the properties of the HARQ mechanism for each Service, and allows you to define Service Mapping Rules.

The Services page includes the following tabs:

- "Definitions Tab"
- "Mapping Tab"

6.10.4.1 Definitions Tab

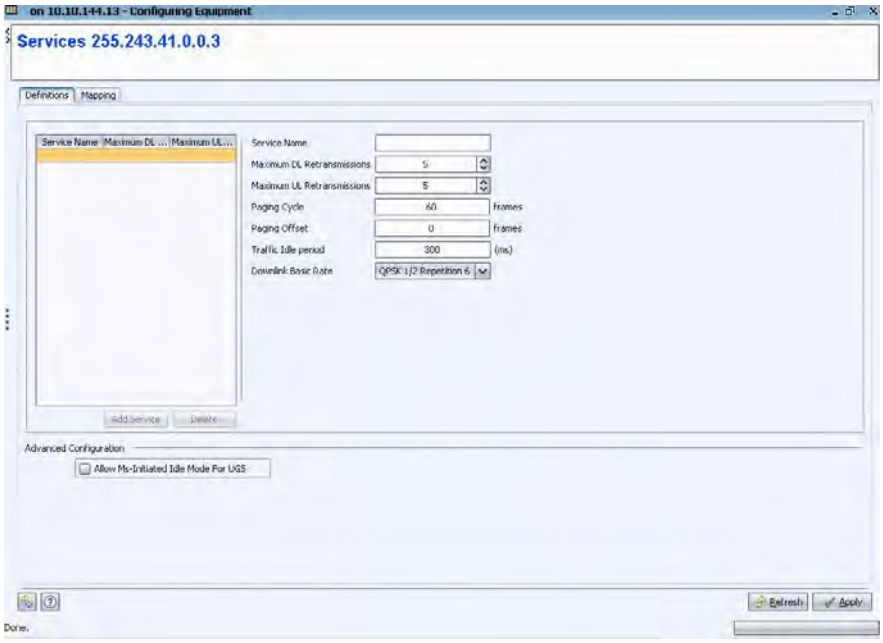


Figure 6-59: Services Page - Definitions Tab

The Services table displays the following read-only parameters for each existing Service:

Parameter	Description
Service Name	The name of the service.
Maximum DL Retransmissions	The maximal number of downlink retransmissions of an HARQ sub-burst for this service.

Parameter	Description
Maximum UL Retransmissions	The maximal number of uplink retransmissions of an HARQ sub-burst for this service.

Select an entry to open the Editor for the selected service.

The following buttons are available below the table.:

Button	Description
Add Service	Adds a new entry to the table and opens the Editor, allowing to configure parameters for the new service. The Service Name is a mandatory parameter. If you type a Service Name and click **Apply**, the new service will be created with default values.
Delete	Deletes the selected entry (or several selected entries) from the table.

The Service Parameters Editor includes the following parameters:

Parameter	Description
Service Name	The name of the service. 1 to 32 characters. The name of an existing service cannot be modified.
Maximum DL Retransmissions	The maximal number of downlink retransmissions of an HARQ sub-burst for this service. The range is 0-15. The default is 5.
Maximum UL Retransmissions	The maximal number of uplink retransmissions of an HARQ sub-burst for this service. The range is 0-15. The default is 5.
Paging Cycle	Per-Service type policy parameter in PA used to determine Paging Cycle value (in frames) for the MS during IM Entry and MS Paging. The range is from 6 to 1000. The default is 60.
Paging Offset	Per-Service type parameter in PA used to determine Paging Offset value (in frames) for the MS during IM Entry and Paging. Paging Offset value shall not exceed the chosen Paging Cycle value. The range is from 0 to 1000. The default is 0.
Traffic Idle Period	Traffic Idle period in milliseconds - per Service type. The range is from 50 to 60000 in steps of 50. The default is 300.

Parameter	Description
Downlink Basic Link	The downlink basic rate. ■ QPSK 1/2 Repetition 6 ■ QPSK 1/2 Repetition 4 ■ QPSK 1/2 Repetition 2 ■ QPSK 1/2 ■ QPSK 3/4 ■ 16-QAM 1/2 ■ 16-QAM 3/4 ■ 64-QAM 1/2 ■ 64-QAM 2/3 ■ 64-QAM 3/4 ■ 64-QAM 5/6 The default is QPSK 1/2 Repetition 6.

The Advanced Configuration section includes the following parameter:

Parameter	Description
Enable Idle Mode Ms Initiated For UGS	Defines whether BS allows MS to enter idle mode initiated by the MS, when there is a UGS connection available. If it is disabled - BS shall always reject MS initiation and request to enter idle mode. If it is enabled - BS would approve MS to enter the idle mode without being able to guarantee the required QoS for UGS. The default is Disable.

6.10.4.2 Mapping Tab

The Mapping tab enables defining Service Mapping rules.

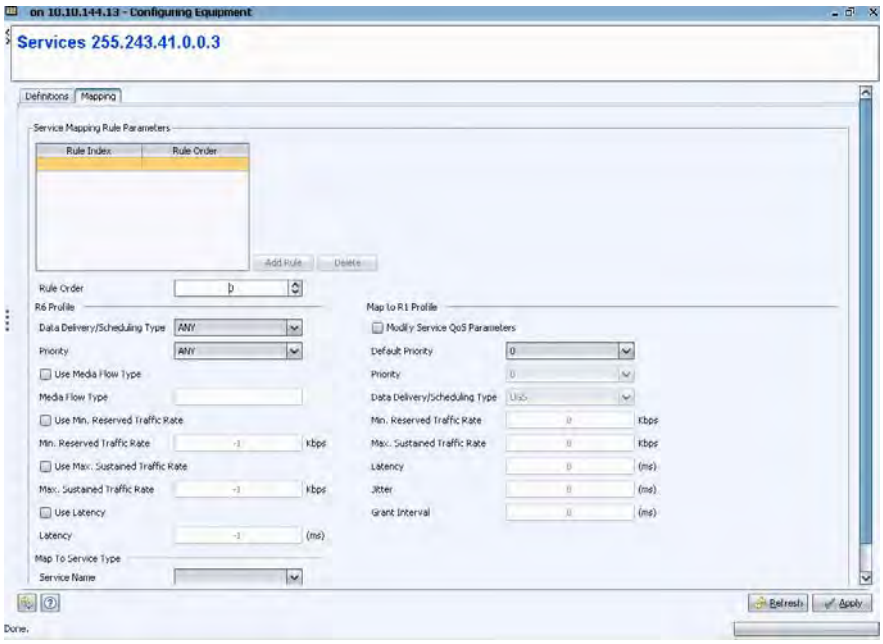


Figure 6-60: Services Page - Mapping Tab

The Mapping tab includes the following sections:

- "Service Mapping Rule Parameters Table"
- "R6 Profile"
- "Map to Service Type"
- "Map to R1 Profile"

6.10.4.2.1 Service Mapping Rule Parameters Table

The Service Mapping Rule Parameters table includes the following read-only parameters for each service mapping rule:

Parameter	Description
Rule Index	The rule's sequential number. An auto-sequential number starting from 1 up to a maximum of 255.
Rule Order	Defines the order in which the rules are enforced.

Select an entry to open the Service Mapping Rule Editor for the selected entry.

The Service Mapping Rule Parameters table also includes the following buttons:

Parameter	Description
Add Rule	Adds a new entry to the table and opens the Service Mapping Rule Editor allowing configuration of parameters for the new rule.
Delete	Deletes the selected entry (or several selected entries) from the table.

6.10.4.2.2 Service Mapping Rule Editor

The Editor includes the following sections:

- "Rule Order"
- "R6 Profile"
- "Map to Service Type"
- "Map to R1 Profile"

6.10.4.2.2.1 Rule Order

The Rule Order section includes the following parameter:

Parameter	Description
Rule Order	Defines the order in which the rows of the table are checked to find a match. The value of this parameter must be different for each row instance. The range is from 1 to 255..

6.10.4.2.2.2 R6 Profile

The R6 Profile section includes the following parameters:

Parameter	Description
Data Delivery/Scheduling Type	An R6 parameter entry in the lookup table specifying the data delivery type (service type): UGS, RT-VR, NRT-VR, BE, ERT-VR/ertPS, or ANY.
Priority	An R6 parameter entry in the lookup table specifying the traffic priority: 0-7 or ANY.

Parameter	Description
Use Media Flow Type	If enabled (checked), the service lookup function will try to match the Service Flow Media Flow Type with the Media Flow Type entry (see below). If disabled the service lookup function will ignore the Media Flow Type.
Media Flow Type	An R6 parameter entry in the lookup table that is relevant only if the Use Media Flow Type option is enabled. A string of up to 32 characters.
Use Min. Reserved Traffic Rate	If enabled (checked), the service lookup function will try to match the Service Flow Min. Reserved Traffic Rate with the Min Reserved Traffic Rate entry (see below). If disabled the service lookup function will ignore the Min. Reserved Traffic Rate.
Min. Reserved Traffic Rate	An internal R6 profile parameter specifying the minimum reserved traffic rate in Kbps. Applicable only for relevant data delivery type (UGS, NRTVR, RTVR, ERTVR). For NRTVER, RTVR and ERTVR-cannot be higher than Max. Sustained Traffic Rate. The range is 0-40000. A value of -1 indicates that the parameter is not used.
Use Max. Sustained Traffic Rate	If enabled (checked), the service lookup function will try to match the Service Flow Max. Sustained Traffic Rate with the Max. Sustained Traffic Rate entry (see below). If disabled the service lookup function will ignore the Max. Sustained Traffic Rate.
Max. Sustained Traffic Rate	An internal R6 profile parameter specifying the maximum sustained traffic rate in Kbps. Applicable only for relevant data delivery type (NRTVR, RTVR, BE, ERTVR, ANY). The range is 0-40000. A value of -1 indicates that the parameter is not used.
Use Latency	If enabled (checked), the service lookup function will try to match the Service Flow Latency with the Latency entry (see below). If disabled the service lookup function will ignore the Latency.
Latency	An R6 parameter entry in the lookup table specifying the maximum tolerated latency in milliseconds. Applicable only for relevant data delivery type (UGS, RTVR, ERTVR). The range is 0-5000. A value of -1 indicates that the parameter is not used.

6.10.4.2.2.3 Map to Service Type

The Map to Service Type section includes the following parameter:

Parameter	Description
Service Name	The Service Name (HARQ properties) assigned to the service flow, The available Service Names (refer to "Definitions Tab" on page 255). Note that if a new/modified Service Mapping Rule results in the same R1 Profile Data Delivery/Scheduling Type (see "Map to R1 Profile" below) as an existing rule, the Service Names they map to should have the same HARQ properties (Maximum DL Retransmissions, Maximum UL Retransmissions, Max Sub-Burst Size and Target Packet Error Rate). For details refer to "Definitions Tab" on page 255..

6.10.4.2.2.4 Map to R1 Profile

The Map to R1 Profile section includes the following parameters:

Parameter	Description
Modify Service QoS Parameters	Indicates whether to modify service QoS parameters using internal R1 profile parameters. If disabled, only the Default Priority parameter is applicable. All other parameters below are not applicable. If enabled, Default Priority is not applicable. Availability of other parameters depends on selected option for Data Delivery/Scheduling Type.
Default Priority	The traffic priority to be used when priority is missing in the R6 request. Relevant only if Modify Service QoS Parameters is not enabled. The range is 0-7.
Priority	An internal R1 profile parameter specifying the traffic priority. Relevant only if Modify Service QoS Parameters is enabled and Data Delivery/Scheduling Type is other than UGS. The range is 0-7.
Data Delivery/Scheduling Type	An internal R1 profile parameter, specifying the type of data delivery (service type). Relevant only if Modify Service QoS Parameters is enabled. Available types are UGS, RT-VR, NRT-VR, BE, ERT-VR.
Min. Reserved Traffic Rate	An internal R1 profile parameter specifying the minimum reserved traffic rate in Kbps. The range is 0-40000. Relevant only if Modify Service QoS Parameters is enabled and Data Delivery/Scheduling Type is other than BE.

Parameter	Description
Max. Sustained Traffic Rate	An internal R1 profile parameter specifying the maximum sustained traffic rate in Kbps. The range is 0-40000. Relevant only if Modify Service QoS Parameters is enabled and Data Delivery/Scheduling Type is other than UGS.
Latency	An internal R1 profile parameter specifying maximum latency in milliseconds. The range is 0-5000. Relevant only if Modify Service QoS Parameters is enabled and the data delivery type is UGS, RT-VR, or ERT-VR.
Jitter	An internal R1 profile parameter specifying maximum tolerated jitter in milliseconds. The range is 0-5000. Relevant only if Modify Service QoS Parameters is enabled and the data delivery type is UGS or ERT-VR.
Grant Interval	An internal R1 profile parameter specifying the grant interval in milliseconds. The range is 0-5000. Relevant only if modify-serviceqos is TRUE and the data delivery type is UGS or ERT-VR.

6.11 Site Sector (not applicable for Mini-Centralized ASN-GW)

The Site Sector node includes a page for each configured site sector. Up to 6 site sectors, numbered 1 to 6, can be defined.

To add a site sector, right-click the Site Sector node in the navigation tree and select **Create**.

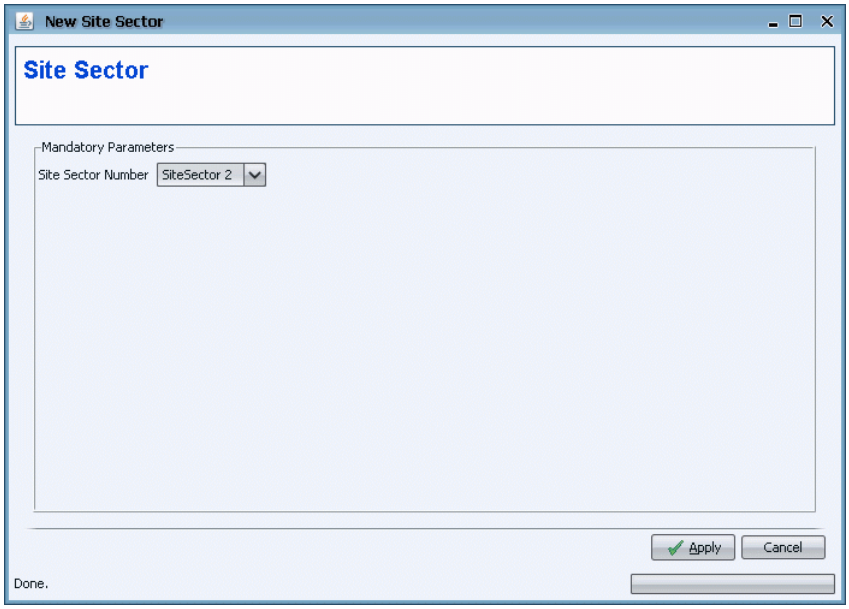


Figure 6-61: New Site Sector Window

In the New Site Sector window, select the mandatory Site Sector Number (the available options include only unassigned numbers) and click **OK**. You should configure additional properties in the Site Sector # page that is added to the navigation tree.

To delete a site sector, right-click the required Site Sector # sub-node in the navigation tree and select **Delete**.

6.11.1 Site Sector # Page

The Site Sector # page enables defining site sector general properties and associations.

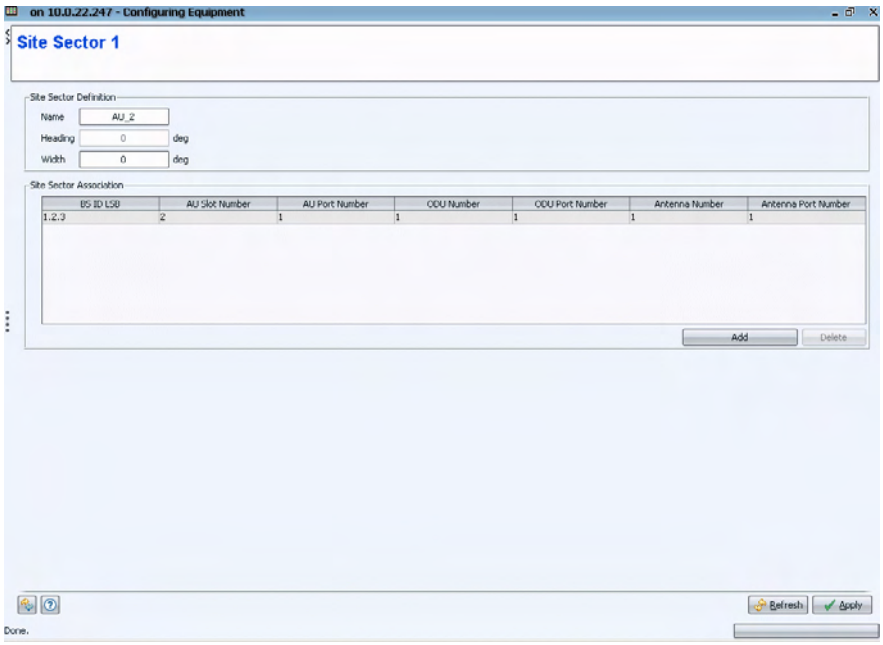


Figure 6-62: Site Sector # Page

The Site Sector # page includes the following sections:

- "Site Sector Definition"
- "Site Sector Association"

6.11.1.1 Site Sector Definition

The Site Sector Definition section includes the following parameters:

Parameter	Description
Name	The sector name. A describtive string of up to 32 printable characters.
Heading	The sector heading (the center angle of the sector), in degrees. The range is from 0 to 359. The heading of an associated Sector cannot be changed.
Width	The planned sector coverage, in degrees. The range is from 0 to 359.

6.11.1.2 Site Sector Association

The Site Sector Association table includes the following read-only parameters for each existing site sector association:

Parameter	Description
BS ID LSB	The unique ID of the BS.
AU Slot Number	The AU slot number.
AU Port Number	The AU port number.
ODU Number	The ODU slot number.
ODU Port Number	The ODU port number.
Antenna Number	The antenna number.
Antenna Port Number	The antenna port number.

The Site Sector Association table also includes the following buttons:

Parameter	Description
Add	Adds a new entry to the table.
Delete	Deletes the selected entry (or several selected entries) from the table.

An existing association cannot be modified (to modify an association-delete it and add the modified association.

To add an association, click on the Add button. A new line is added to the table. Double-click on each parameter's entry to open a drop-down selection menu with the available options according to the status of the relevant components in the database.

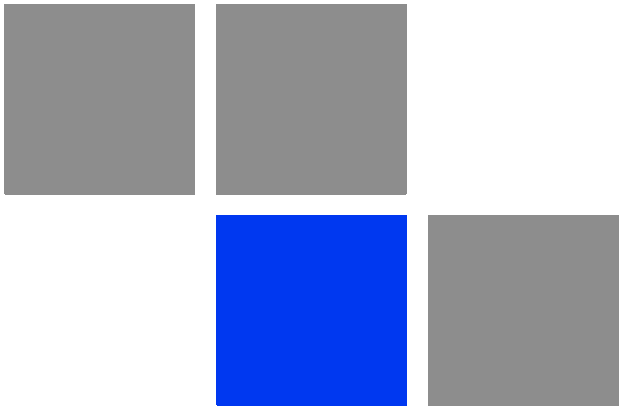
Creation of a new Sector Association entry will succeed only if all the following conditions are met:

- The specified BS object exists and is properly configured:
  - All mandatory parameters have been configured properly.
  - The configured frequency is within the valid range defined by the required ODU type in the specified ODU object and the bandwidth parameter.
  - The Operator ID is the same as Operator ID configured for previously associated BSs.
- An ODU Port (combination of ODU No. and ODU Port No.) cannot appear in more than one entry.

- An AU Port (combination of AU Slot No. and AU Port No.) cannot appear in more than one entry.

- An Antenna Port (combination of Antenna No. and Antenna Port No.) cannot appear in more than one entry.

- A specific Antenna can only be associated with a single Sector.In the current release, a specific BS can only be associated with a single AU, and vice versa (If BS 66053 is associated with AU 1, BS 66053 cannot be associated with another AU, and AU 1 cannot be associated with another BS).



Chapter 7

The Performance Viewer

In This Chapter:

- "The Performance Viewer" on page 267
- "The Counters Group Selection Section" on page 270
- "The Counters Selection Section" on page 271
- "The Graph and Controls Section" on page 273

7.1 The Performance Viewer

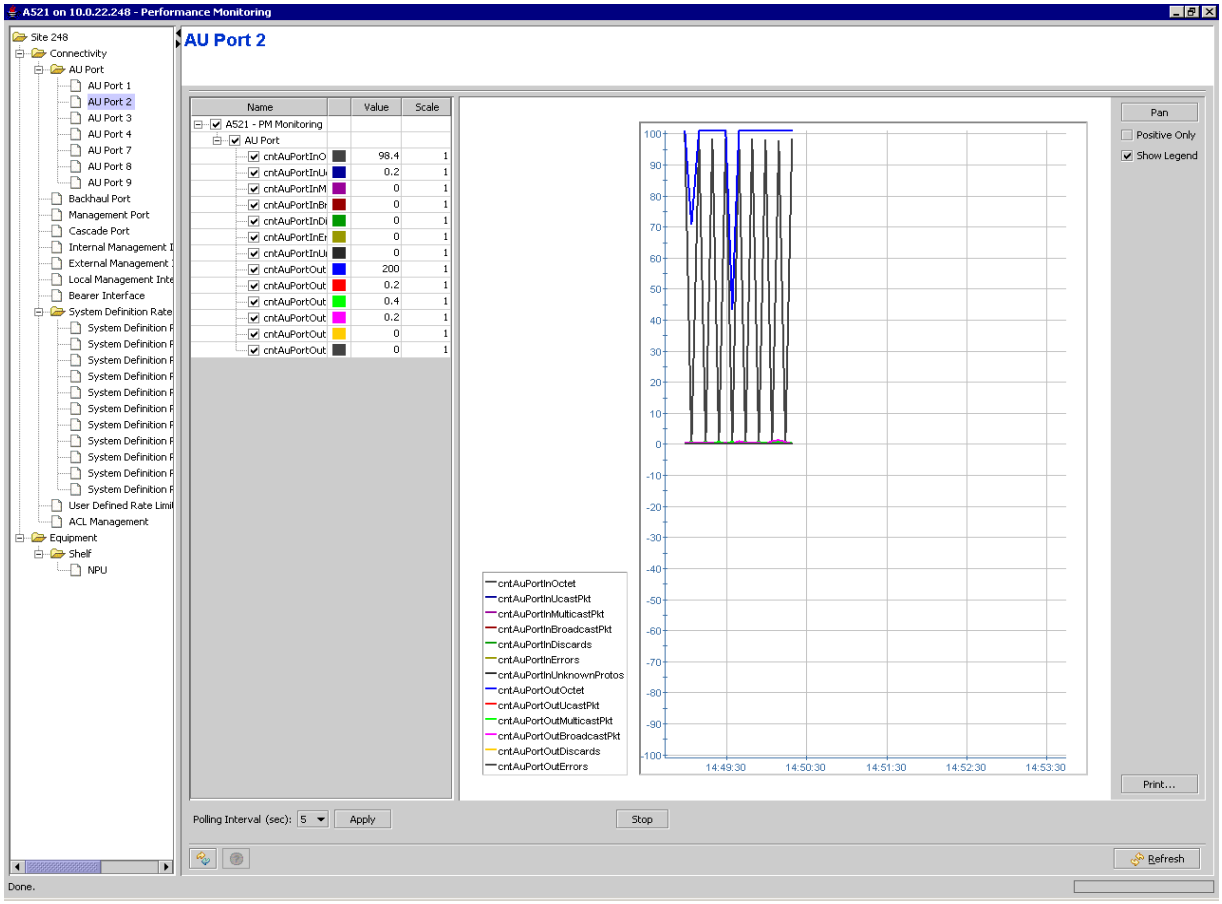


Figure 7-1: Performance Page

The Performance Viewer enables on-line monitoring of graph(s) for selected counters. The graph for each accumulating counter displays the counter rate, defined as: (Current Value-Previous Value)/Polling Interval (seconds). For gauges (such as the NPU CPU usage ratio), the absolute value is displayed.

For details on supported counters groups and the counters in each group, refer to the Performance Monitoring document.

To open the Performance Viewer:

In the Equipment Manager, select one device whose state is Up and click on the Performance button, or-right click on the entry and select the Performance option in the pop-up window. The Performance Viewer for the selected device will open.

The Performance viewer include three sections: the counter group selection section, the counters selection section and the graph and control buttons section. For convenient viewing of the required information, you can change the relative sizes of the two sections, by dragging the line separating them.

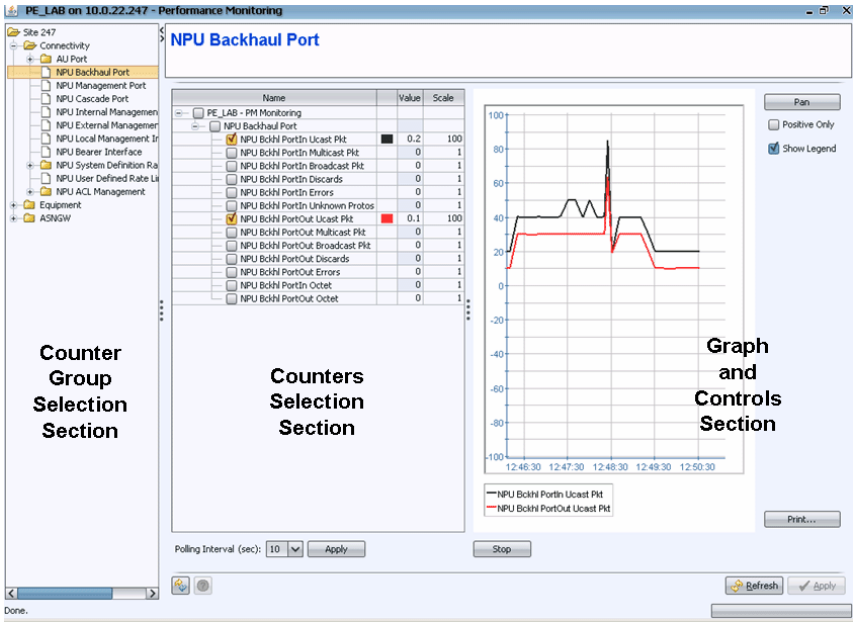


Figure 7-2: The Performance Viewer

- "The Counters Group Selection Section" on page 270
- "The Counters Selection Section" on page 271
- "The Graph and Controls Section" on page 273

7.2 The Counters Group Selection Section

The counters group selection section enables you to select a specific counters group.

The counters group selection section, on the left side of the window, displays all the counters groups applicable to the relevant device.

Use the Expand/Collapse (+/-) check-boxes to view/hide all counters groups available for the device.

7.3 The Counters Selection Section

The counters selection section enables you to select specific counters, to define the polling interval for the on-line display and to define the graph's values scale for each of the selected counters.

The counters selection section displays all the counters applicable to the counters group selected in the counters groups selection section.

Use the Expand/Collapse (+/-) check-boxes name, to view/hide all counters available in the group.

To the right of each counter, the following details are available:

- The color of the graph for this counter (available only for a selected counter)
- The current graph's value of the counter
- The scale value for the graph (see details below)

To view the graph of a counter:

Select the check box to the left of a counter to add it to the graph and view its details. The color to be used in the graph for the selected counters is displayed to the right of the counter.

To change the color of a counter's graph:

Click on the color display (on the right side of the selected counter). The **Pick a Color** window opens, allowing you to change the color's properties.

Deselect the check box to terminate the on-line display of the counter. Select again to continue the display.

NOTE

You can also select/deslect all the counters in a group or all counters in the relevant device using the relevant check-box(s).

To optimize the value (vertical) axis of a counter:

The values scale (vertical axis) is fixed, between -100 to +100 (or between 0 to 100 for a Positive Only graph). Some counters may have values that either exceed this range or are too small. The value scale of each counter is displayed to the right of the counter's name (the default is 1.0). To change the value scale of a counter, select it and choose the desired scale from the scale drop-down list that will be displayed on the right side of the counter. You can use the current graph's value (displayed in the Value column next to the Counter's name) to identify the required value scale. The values displayed for this counter on the graph are the actual counter values multiplied by the scale factor.

To change the polling interval:

The available options for the Polling Interval are 5, 10, 20 and 60 seconds. The default is 5 seconds. Select the required polling interval and click on the **Apply** button next to it.

7.4 The Graph and Controls Section

The graph and controls section contains the graph area, used for displaying the selected counters' values over time.

The names and details of the counters that were selected are displayed below or to the left of the graph area.

The following graph controls are available:

- **Pan/Zoom** button**:** Toggles between the Pan and Zoom modes.
- **Positive Only** check-box**:** Select to set the boundaries of the values (vertical) axis between 0 and +100. Deselect (the default) to set the boundaries between -100 to +100.
- **Show Legend** check-box: Select (the default) to display the selected counters' legend. Deselect to hide the legend.
- **Print...:** Enables to setup the page, print the graph or display a print preview.

You can use the **Pan/Zoom** button to either shift the time axis or change its resolution.

To shift the time axis:

1. Make sure that Pan mode is selected. If Zoom mode is selected, click the button to toggle to Pan mode.
2. Drag the graph surface left or right to shift the displayed section of the Time axis.

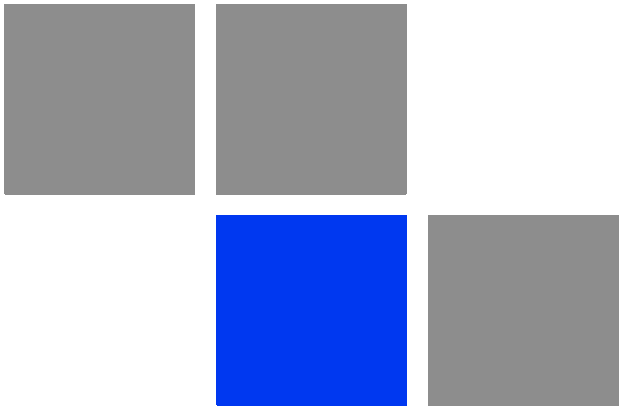
To change the resolution of the time axis:

1. Make sure that Zoom mode is selected. If Pan mode is selected, click on the button to toggle to Zoom mode.
2. Drag the graph surface left or right to change the resolution of the Time axis.

To print or preview a graph:

Click on **Print...**. A pop-up menu opens with three options:

- **Print...:** To open the Print dialog box for selecting a printer, setting up the printing properties and printing the graph.
- **Print Preview...:** Displays a preview of the graph before printing.
- **Page Setup...:** To open the Page Setup dialog box.



Chapter 8

Tasks

In This Chapter:

- "Performance Collection Task" on page 277 - not applicable to the Local CRAFT Utility
- "Backup Configuration Task" on page 282
- "Restore Configuration Task" on page 285
- "Software Upgrade Task" on page 288
- "File Data Aging Task" on page 294
- "CLI Task" on page 295
- "Mass Neighboring Task" on page 298
- "Multiple Configuration (Template Based) Task" on page 301

8.1 Performance Collection Task

LOCAL CRAFT NOTE

The Performance Collection Task is not applicable to the Local CRAFT Utility.

The performance data collection and storage feature in the devices (see also "Performance Tab" on page 161) enables collection and storage of selectable groups of counters at fixed intervals of 15 minutes. The device stores the performance data files collected during the last 24 hours (up to 96 xml files).

The Performance Collection task enables the collection of stored performance data files from specific equipment. Only files that do not exist in the database will be retrieved.

To open the Performance Collection Task Editor:

In the Task Manager window, do one of the following:

- To open a new task, use the Task Wizard.
- To open an existing task select a Performance Collection task from the list of existing tasks, right-click and select the **Edit** option, or double-click on the selected task's entry. If the task is Active, the Runtime result screen is displayed, displaying the status of the running task.
- If the task is Inactive, the Performance Collection Task Editor for the existing task is displayed.

The Performance Collection Task Editor includes three tabs:

» "General Tab" - Section 8.1.1

» "Entities Tab" - Section 8.1.2

» "Actions Tab" - Section 8.1.3

8.1.1 General Tab

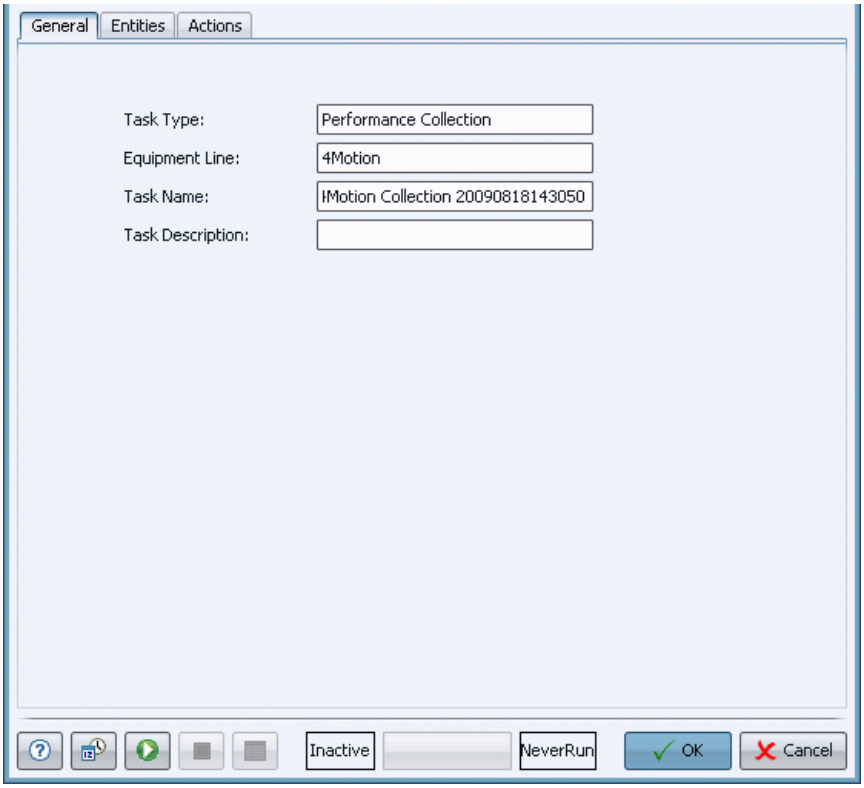


Figure 8-1: Performance Collection Task Editor - General Tab

The General tab of the Performance Collection task includes the following parameters:

Parameter	Description
Task Type	The type of data to be collected: *Performance Collection*. This field is read-only.
Equipment Line	The type of equipment from which to collect data. Read only in the current version
Task Name	The name of the task. A string of 1 to 128 characters. The default name includes the task's type and the date and time at which the task was created. Note that when using the Task Wizard the default task name automatically replaces the name selected in the first (Create New Task) step.
Description	An optional brief description of the task.

8.1.2 Entities Tab

The Entities tab enables the selection of existing entities for performance collection.

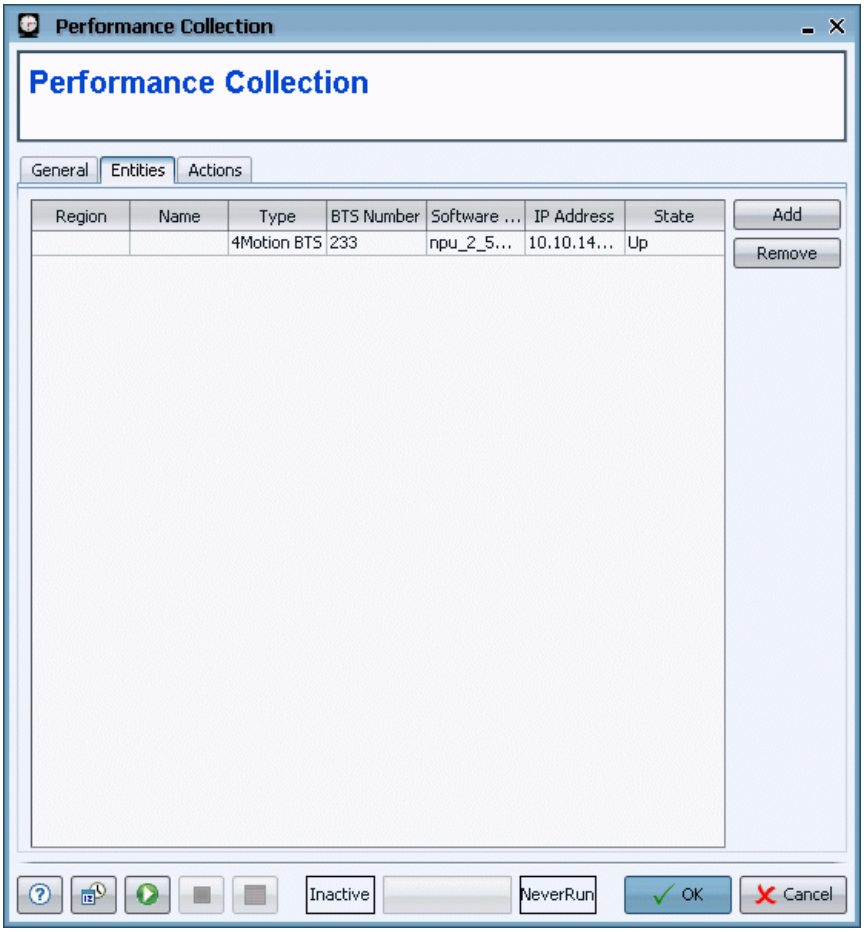


Figure 8-2: Performance Collection Task Editor - Entities Tab

The Entities tab includes the following controls:

Parameter	Description
Add	Opens the Equipment Selection window with the list of available devices, allowing you to select the device(s) to be added to the task.
Remove	Removes selected entities from the list.

The following information is displayed for each entity in the list:

Parameter	Description
Region	The location associated with the selected equipment in the database of the management system.
Name	The name of the device as configured in the device.
Type	The type of device.
BTS Number	The ID number of the device (Site ID) as configured in the device.
Software Version	The running software version of the device (NPU).
IP Address	The IP address of the device.
State	The operational state of the equipment: Up/Down/Unreachable/Unknown

8.1.3 Actions Tab

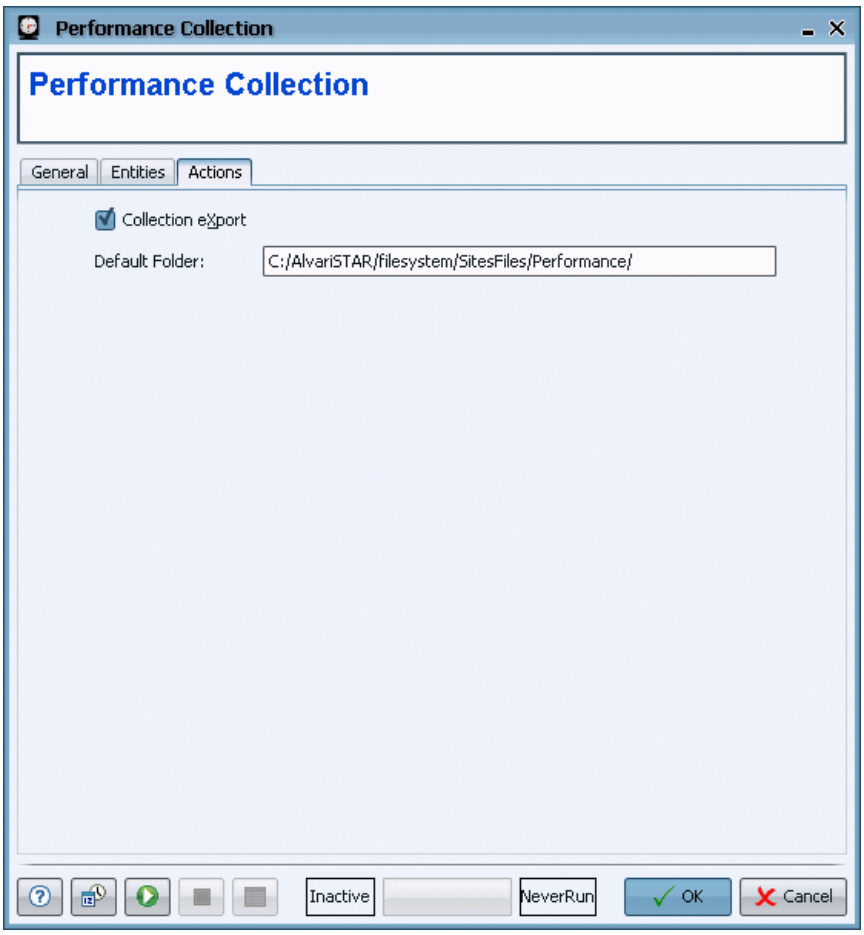


Figure 8-3: Performance Collection Task Editor - Actions Tab

The Actions tab enables setting how collected performance data is saved. By default, the performance data is saved in the management system's file system. In addition, the performance data xml files can be exported and saved in the client management system's file system. To automatically export the collected data to the location indicated in the read-only **Default Folder** text box, select the **Collection eXport** check-box.

8.2 Backup Configuration Task

LOCAL CRAFT NOTE

In the Local CRAFT Utility, the Configuration Backup Task is applicable only to the managed device.

The Backup Configuration task enables the retrieval of device's configuration backup file(s) from selected device(s). The backup files include copies of all the applicable configuration data and databases in the managed device. You can also retrieve Logging files from selected device(s). Logging files can later be exported to and used by an external application as part of a debugging procedure.

The device maintains up to the last three created configuration backup files. Configuration backup files are created periodically by the NPU, or upon a specific request to backup the current configuration. When requesting a backup file, you can either create and retrieve the current configuration, or retrieve one of the previous backup configuration files available in the NPU.

To open the Backup Task Editor:

To open the Backup Task Editor, do one of the following:

- In the Equipment Manager, select one or several entries, right-click on the selected entries and select the **Backup Configuration** option. The State of all selected devices must be Up. The Backup Task Editor for a new task is displayed with the selected devices automatically included in the Source Equipment table.

- In the Task Manager window, do one of the following:

  - » To open a new task, use the Task Wizard.

  - » To open an existing task, select a Configuration Backup task from the list of existing tasks, right-click and select the **Edit** option, or double-click on the selected task's entry. If the task is Active, the Runtime result screen is opened, displaying the status of the running task. If the task is Inactive, the Backup Task Editor for the selected task is displayed.

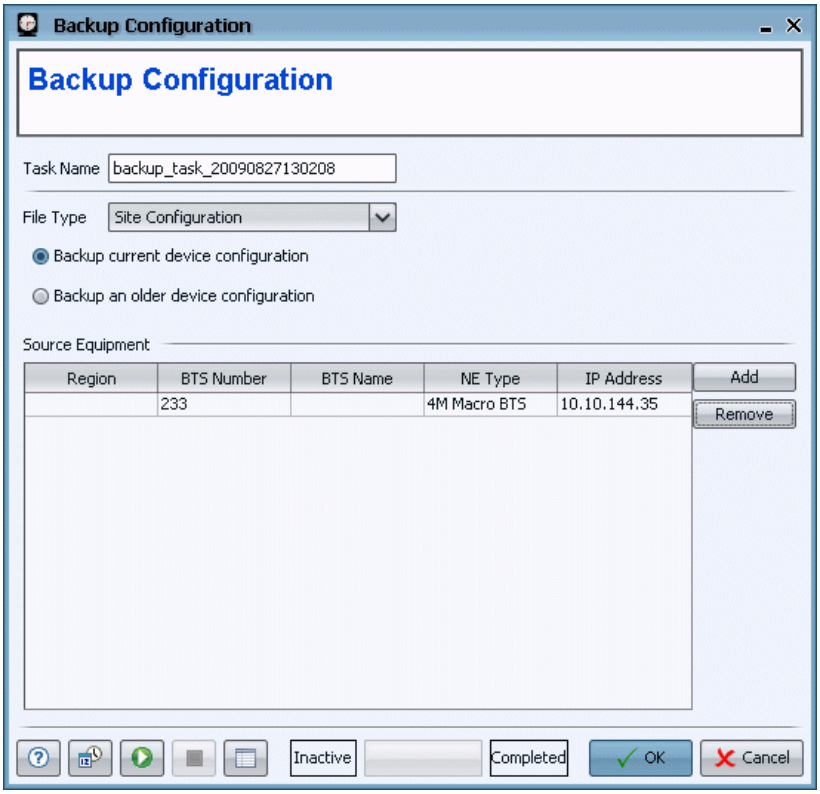


Figure 8-4: Backup Task Editor

The Backup Task editor comprises the following fields:

Parameter	Description
Task Name	The name of the task. A string of 1 to 128 characters. The default name includes the task's type and the date and time at which the task was created: backup_task_<yyyymmddhhmmss>. Note that when using the Task Wizard the default task name automatically replaces the name selected in the first (Create New Task) step.
File Type	The type of backup file: ■ Site Configuration: The entire site configuration. ■ Logging: The NPU SW modules log files.

Parameter	Description
Backup Current/Older Configuration Options	Available below the File Type selection field only if the selected File Type is Site Configuration. Select one of the following: ■ Backup Current Device Configuration: Select to retrieve the current configuration of the source device(s). The file will be created by the device upon getting the request from the management system. ■ Backup an older device configuration: Select to retrieve one of the previously created configuration files available in the database of the source device(s)

The Source Equipment table includes the following details for each device participating in the task:

Parameter	Description
Region	The location associated with the selected equipment in the database of the management system.
BTS Number	The device's number (Site ID) as configured in the device.
BTS Name	The name of the device as configured in the device.
NE Type	The device type.
IP Address	The IP address of the device.
File	Available only for **Site Configuration** backup task, if the selected option is **Backup an older device configuration**. The name of the file to be retrieved from the device.

Click on the **Add** button to open the equipment Selector, allowing you to add devices to the Source Equipment table: Select the device(s) to participate in the task, right-click and select the **Select** option (or double-click on a selected single device).

For Site Configuration backup task, if the selected option is **Backup an older device configuration**, a **File Name** drop-down menu for each entry allows you to select the file that will participate in the task. Each File Name includes its creation date and time.

To remove one or several devices from the Source Equipment table select the device(s) to be removed and click on the **Remove** button.

8.3 Restore Configuration Task

LOCAL CRAFT NOTE

In the Local CRAFT Utility, the Restore Configuration Task is applicable only to the managed device.

The Restore Configuration task enables loading a configuration file to a target device. The configuration file can be one of the following:

- A backup configuration file previously retrieved from the target device.
- A Duplicate Site configuration file previously prepared for the target device (based on the defined Site ID).

The task also enables loading a vendor configuration file to selected devices. A vendor configuration file includes vendor parameters that cannot be configured by the configuration tools available to the customer. If for any reason the vendor will decide that any of these parameters should be modified, the applicable customers will be notified and a special file that includes the necessary modifications shall be sent to them.

To open the Restore Task Editor:

In the Task Manager window, do one of the following:

- To open a new task use the Task Wizard.
- To open an existing task, select an existing Restore Configuration task from the list, right-click and select the **Edit** option, or double-click on the selected task. If the task is Active, the Runtime result screen is displayed, displaying the status of the running task. If the task is Inactive, the Restore Task Editor for the selected task is displayed.

  OR:

  In the File Manager for Equipment files select the required backup configuration file, right-click and select the **Restore** option, or double-click on the selected file. The Restore Task Editor for a new task with the details of the selected file (Type is Site Configuration) is displayed.

OR:

In the File Manager for Duplicate Site files select the required file, right-click and select the **Restore** option, or double-click on the selected file. The Restore Task Editor for a new task with the details of the selected file is displayed.

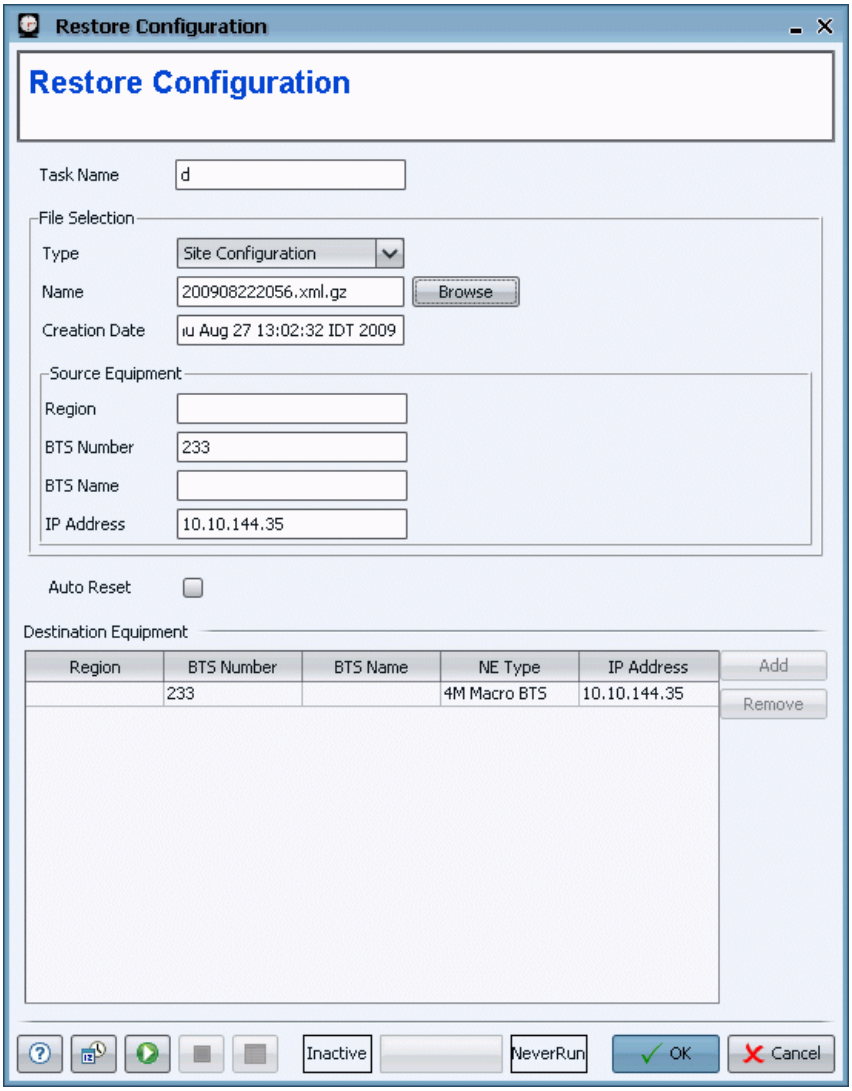


Figure 8-5: Restore Task Editor

The Restore Task editor comprises the following fields:

Parameter	Description
Task Name	The name of the task. A string of 1 to 128 characters. The default name includes the task's type and the date and time at which the task was created.
Type	The type of file to be used by the task: ■ Site Configuration: A backup Configuration file. ■ Duplicate Site: A Duplicate Site configuration file. ■ Vendor Configuration: A vendor configuration file.
Name	For a new Restore Task, click on the Browser button to open the applicable Selector windoe according to the selected Type above, and select the file to be used by the task.
Creation Date	The read-only creation date of the selected file.
Source Equipment	Applicable only for Site Configuration Restore task. The details of the source equipment of the selected backup configuration file.
Auto Reset	Click to automatically reset the target equipment after successful completion of the Restore task.

The Target Equipment table includes the following details for each device participating in the task:

Parameter	Description
Region	The location associated with the selected equipment in the database of the management system.
BTS Number	The number of the device (Site ID) as configured in the device.
BTS Name	The name of the device as configured in the device.
NE Type	The device type.
IP Address	The IP address of the device.

For Site Configuration and Duplicate Site Restore tasks the Target Equipment table includes only the read-only details of the target equipment. For a Site Configuration Restore task the target equipment is identical to the source equipment. The details are available only if the State of the target site is Up.

For a Vendor Configuration Restore task, click **Add** to open the equipment Selector, allowing you to add devices to the Target Equipment table. Click **Remove** to remove one or several selected devices from the table.

8.4 Software Upgrade Task

LOCAL CRAFT NOTE

In the Local CRAFT Utility, the Software Upgrade Task is applicable only to the managed device.

This section includes:

- "The Upgrade Task Editor
- "NPU Software Upgrade
- "AU Software Upgrade (not applicable for Mini-Centralized ASN-GW)

8.4.1 The Upgrade Task Editor

Software upgrade is performed by loading the requested software files to the shadow memory of the devices using TFTP, and activating the new software version at a desired moment according to a predetermined process.

Software upgrade consists of several actions that need to be performed:

- Selecting devices to be included in each software upgrade task
- Defining the software file(s) to be loaded
- Scheduling the task (optional)
- Defining the actions that should take place once the new software file is loaded into the devices.

Note that the task can also be used to manage the existing software files in the device without loading a new upgrade file.

When working under Windows, the files to be loaded should be available in the management system firmware folder *\filesystem\firmware\wm*,. The wm folder may need to be manually created.

When working under UNIX, refer to the instructions in:

/opt/<NMS name>/firmware/wm

The system will automatically identify the files and use the correct file for each device type.

NOTE

The file name and format should not be changed.

To open the Software Upgrade Task Editor:

In the Task Manager window, do one of the following:

- To open a new task use the Task Wizard.
- To open an existing task, select a Software Upgrade task from the list, right-click and select the **Edit** option, or double click on the selected task entry. If the task is Active, the Runtime Results window is displayed, displaying the status of the running task. If the task is Inactive, the Software Upgrade Task Editor for the task is displayed.

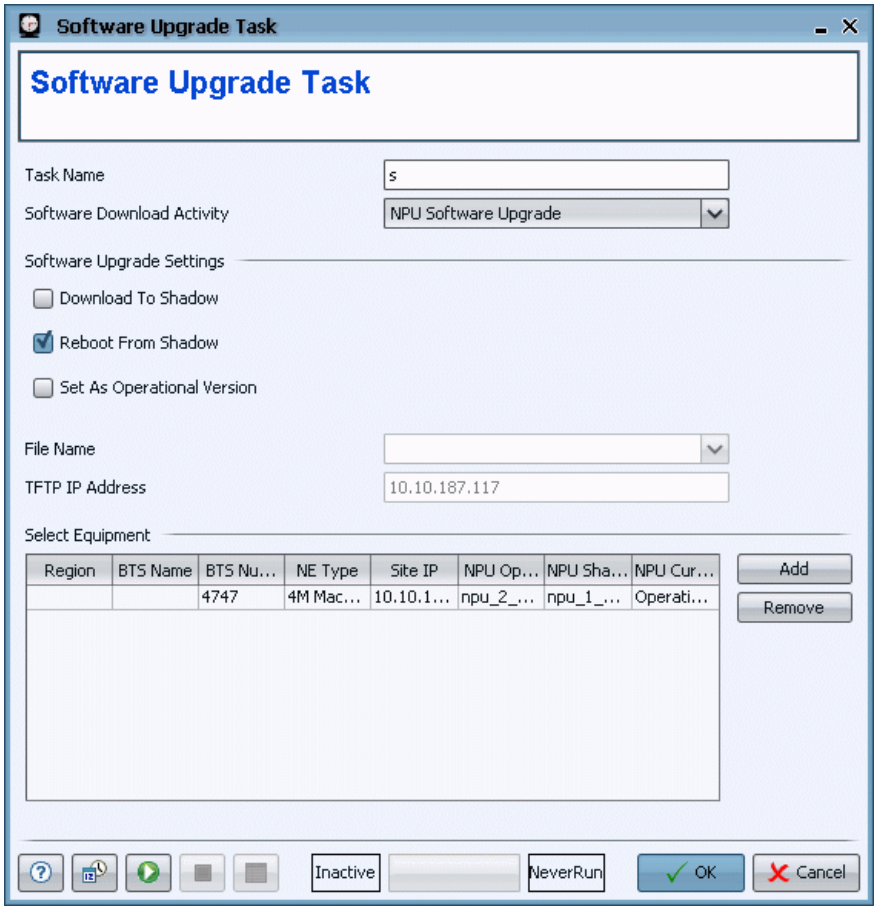


Figure 8-6: Software Upgrade Task Editor - NPU Software Upgrade

The Software Upgrade Task Editor includes the following general parameters:

Parameter	Description
Task Name	The name of the task. A string of 1 to 128 printable characters.
Software Download Activity	The type of upgrade: NPU Software Upgrade or AU Software Upgrade. AU Software Upgrade is not applicable for Mini-Centralized ASN-GW).

The content of the Software Upgrade Settings and Select Equipment sections depend on the selected Software Download Activity.

8.4.2 NPU Software Upgrade

The Software Upgrade Settings section comprises the following action options when NPU Software Upgrade is selected as the Software Download Activity:

Parameter	Description
Download to Shadow	Loads the upgrade file selected in the File Name selection field below to the Shadow memory of the applicable device(s).
Reboot from Shadow	Perform reset, and boot from the Shadow file.
Set as Operational Version	Applicable for devices running from the Shadow file. Sets the running file as the new Operational file. The previous Operational (Main) file will now become the new Shadow file.
File Name	Available only if the Download to Shadow option is selected. The name of the upgrade file to be loaded. The drop-down menu enables selecting one of the files available in the default firmware folder. If another TFTP server is selected (see below), the file(s) should be available in the root. Otherwise you should specify the full parh and file name.
TFTP IP Address	The IP address of the TFTP server on which the file to be downloaded is stored. This address is set by default to the management system's internal TFTP server IP address, but can be changed to any external TFTP server IP address.

If you select two or three options, then each action will take place only after the successful completion of the previous action (selecting only the Download to Shadow and Set as Operational Version options is not a valid combination).

The selected action(s) will be performed on the devices included in the Select Equipment section. Click on the **Add** button to open equipment selector for adding devices to the table. Click on the **Remove** button to delete selected entries from the table.

8.4.3 AU Software Upgrade (not applicable for Mini-Centralized ASN-GW)

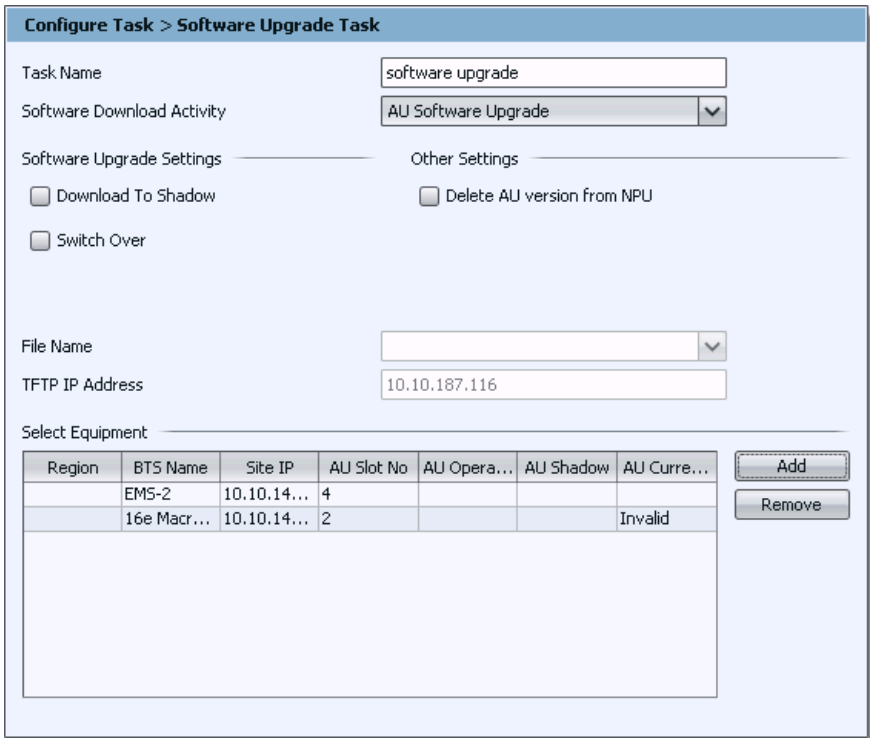


Figure 8-7: Software Upgrade Task Editor - AU Software Upgrade

The Software Upgrade Settings section comprises the following action options when AU Software Upgrade is selected:

Parameter	Description
Download to Shadow	Loads the upgrade file selected in the File Name selection field below to the Shadow memory of the applicable AU(s). The file is loaded first to the applicable NPU(s) and then to the AU(s). If the file already exists in the NPU, the first stage is skipped. If it exists in the AU, the process will be skipped. Note that the NPU can store a maximum of 3 AU SW files. A new SW file cannot be loaded to the NPU if it has already 3 AU SW files (unless one of the SW files is not in use by any AU, in which case it will be replaced by the new AU SW file). You may need to first delete at least one AU SW file from the NPU (see Delete AU Version from NPU below) before executing the Download to Shadow task.
Switch over	The AU(s) reset and boot from the shadow file. If successful, the files are switched automatically and the new is set as the Operational file.

Parameter	Description
Delete AU version from NPU	If selected, deletes the selected software upgrade file from the selected equipment. Note that you can remove only one file at a time. Note also that the file to be deleted must be available also in the default TFTP server.
File Name	Applicable only if the selected option(s) include either Download to Shadow or Delete AU Version from NPU. The name of the upgrade file to be loaded. The drop-down menu enables selecting one of the files available in the default firmware folder. If the selected action is Download to Sgadow and another TFTP server is selected (see below), the file(s) should be available in the root of this server. Otherwise you should manually specify the full parh and file name.
TFTP IP Address	The IP address of the TFTP server on which the file to be downloaded is stored. This address is set by default to the management system's internal TFTP server IP address, but can be changed to any external TFTP server IP address.

You can select both the Download to Shadow and Switch Over options. In this case the Switch Over action will take place only after successful completion of the Load to Shadow action.

The Select Equipment table displays the devices that will participate in the task. The displayed functionality depend on the selected action(s):

If the selected action is **Delete AU Version from NPU**, the table displays all the NPUs that will participate in the task, and the AU software files stored in each of these NPUs. Click on the **Add** button to open the BTS Selector, allowing you to add NPU(s) to the task.

If Download to Shadow action is selected, the table displays all the AUs that will participate in the task and the current SW versions in each AU. Click on the **Add** button to open the equipment selector, allowing you to add AU(s) to the task. You can select between **AU Level Selection** (adding specific AUs) or **Site Level Selection** (adding all AUs in selected Sites).

Click on the **Remove** button to delete selected entries from the table.

8.5 File Data Aging Task

The File Data Aging Task enables limiting the time for maintaining equipment and configuration files in the database (see also "The File Manager" on page 304). This is a system task that cannot be deleted.

To open the File Data Aging Task Editor, select the task from the list of existing tasks, right-click and select the **Edit** option, or double-click on the entry.

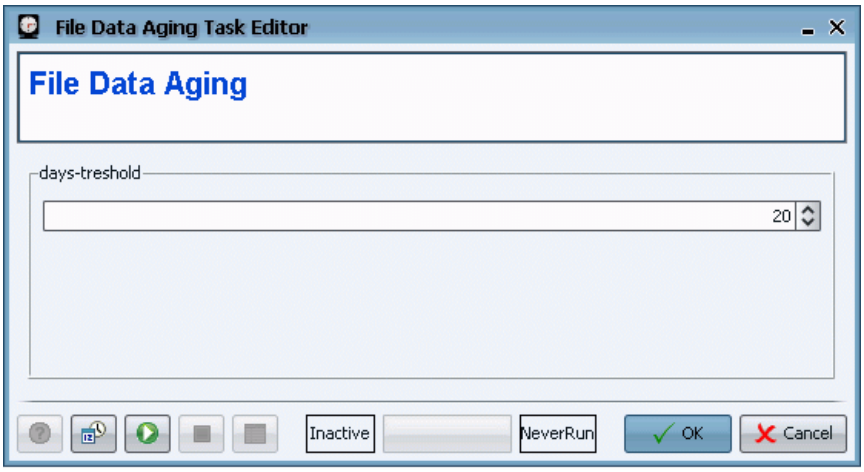


Figure 8-8: File Data Aging Task Editor

The days-threshold parameter sets the maximum time to maintain files in the database. If the elapsed time since a file was added to the database is higher than the value configures for the days-threshold parameter, the file will be deleted from the database.

8.6 CLI Task

LOCAL CRAFT NOTE

In the Local CRAFT Utility, the CLI Task is applicable only to the managed device.

The CLI task enables executing a CLI script file on target device(s).

To open the CLI Task Editor:

In the Task Manager window, do one of the following:

- To open a new task use the Task Wizard and select the CLI option.
- To open an existing task, select an existing CLI task from the list, right-click and select the **Edit** option, or double-click on the selected task. If the task is Active, the Runtime result screen is displayed, displaying the status of the running task. If the task is Inactive, the CLI Task Editor for the selected task is displayed.

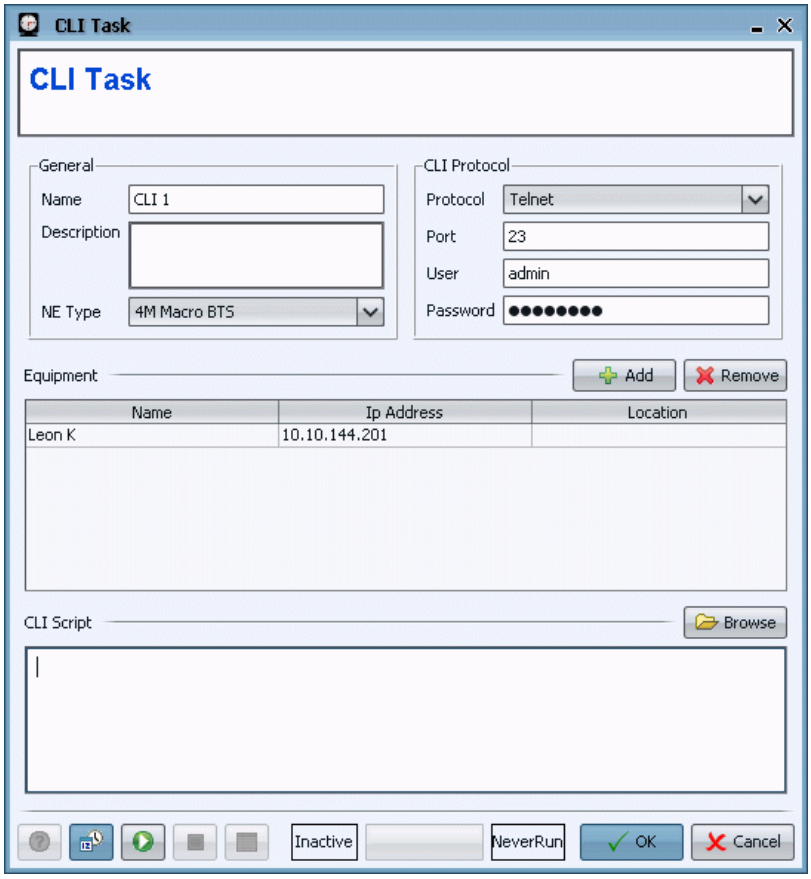


Figure 8-9: CLI Task Editor

The CLI Task editor comprises the following fields:

Parameter	Description
General	
Name	The name of the task. A string of 1 to 128 characters.
Description	An optional free text field providing a general description of the task. A string of 0 to 128 characters.
NE Type	Enables selection of the type of target Network Elements that will participate in the task.
CLI Protocol	
Protocol	Enables selection of the protocol to be used: Telnet or SSH. The default is Telnet.
Port	Displays the default port to be used: For Telnet the default is 23. For SSH the default is 22.

Parameter	Description
User	The user name for the CLI script. Must be a user that is defined in the target device(s) The default user is admin.
Password	The password for the CLI script. Must be the password associated with the defined user in the target device(s). The default password is admin123.

The Equipment table includes the following details for each device participating in the task:

Parameter	Description
Name	The name of the site as configured in the device.
IP Address	The IP address of the device.
Location	The Location associated with the device in the management system

Click **Add** to open the equipment Selector, allowing you to add devices to the Equipment table. Click **Remove** to remove one or several selected devices from the table.

In the **CLI Script** text box, enter the CLI script to be executed on the target device(s). You can use the Browse button to import a pre-prepared script (that may be edited after being imported to the task).

8.7 Mass Neighboring Task

LOCAL CRAFT NOTE

In the Local CRAFT Utility, the Mass Neighboring Task is applicable only to the BSs of the managed BTS.

The Mass Neighboring task enables executing **Send Update to All Neighbors** and **Get Update** tasks on multiple BSs to ensure that the required neighbor BS data in all target BSs is fully updated.

This task complements the one-time Neighboring tasks initiated from a single source BS (see "Neighbor List" on page 233).

To open the Mass Neighboring Task Editor:

In the Task Manager window, do one of the following:

- To open a new task use the Task Wizard. and select the Neighboring Task option
- To open an existing task, select an existing Mass Neighboring task from the list, right-click and select the **Edit** option, or double-click on the selected task. If the task is Active, the Runtime result screen is displayed, displaying the status of the running task. If the task is Inactive, the Mass Neighboring Task Editor for the selected task is displayed.

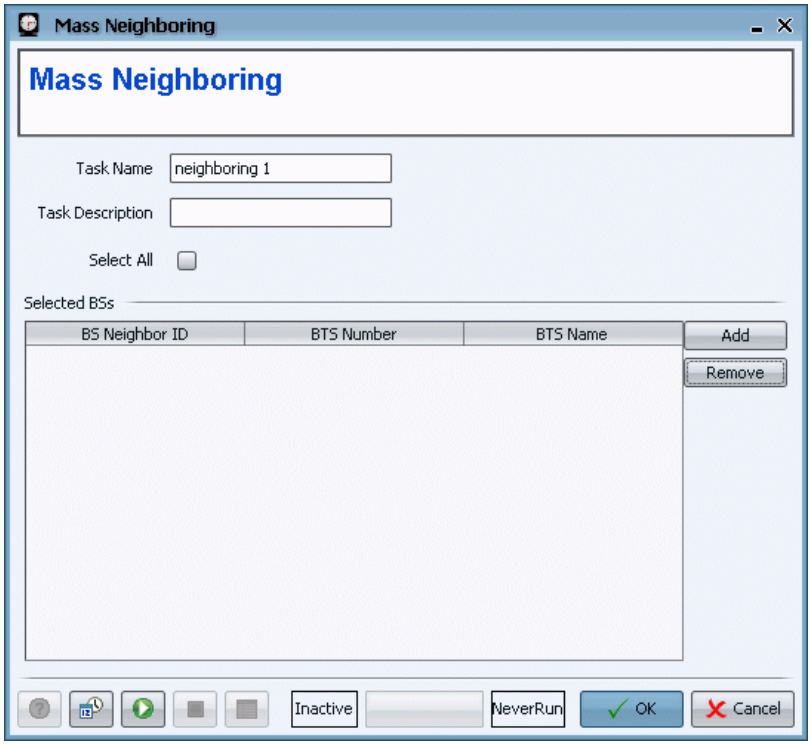


Figure 8-10: Mass Neighboring Task Editor

The Mass Monitoring Task editor comprises the following fields:

Parameter	Description
Task Name	The name of the task. A string of 1 to 128 characters.
Task Description	An optional free text field providing a general description of the task. A string of 0 to 128 characters.
Select All	Select to include all BSs in the Neighboring BSs list in the task. The neighboring BSs list includes all BSs that are defined as neighbors of other BSs or as having at least one neighbor.

The Selected BSs table includes the following details for each BS participating in the task:

Parameter	Description
BS Neighbor ID	The BS ID LSB of the neighbor BS.
BTS Number	The BTS Number (Site ID) of the beighbor BS
BTS Name	The BTS Name of the neighbor BS.

Click **Add** to open the BS Selector, allowing you to add BSs to the table. The list of neighboring BSs available in the BS Selector includes all BSs that are defined as neighbors of other BSs or as having at least one neighbor, and is updated through the **Add**, **Delete** and **Delete from Neighbors** Neighboring tasks initiated from the BSs (see "Neighbor List" on page 233).

Click **Remove** to remove one or several selected BSs from the table.

The task includes **Send Update to All Neighbors** and **Get Update** Neighboring Tasks to/from all BSs participating in the task. If the task includes all neighboring BSs through enabling the **Select All** option, then only the Send Update task to all relevant BSs is executed since this is sufficient for complete update.

8.8 Multiple Configuration (Template Based) Task

LOCAL CRAFT NOTE

In the Local CRAFT Utility, the Multiple Configuration Task is applicable only to the managed device.

The Multiple Configuration task enables modifying the configuration of selected devices using a pre-prepared template. For details on templates and how they are used to modify configuration of target objects refer to "The Template Manager" on page 23.

NOTE

In the current release the template-based Multiple Configuration task supports multiple configuration of BTS devices. It does not support multiple configuration of Mini-Centralized ASN-GW devices.

To open the Multiple Configuration Task Editor:

In the Task Manager window, do one of the following:

- To open a new task use the Task Wizard and select the Multiple Configuration (Template Based) option.
- To open an existing task, select an existing Multiple Configuration task from the list, right-click and select the **Edit** option, or double-click on the selected task. If the task is Active, the Runtime result screen is displayed, displaying the status of the running task. If the task is Inactive, the Multiple Configuration Task Editor for the selected task is displayed.

To open a new task from the Equipment Manager, select the target device(s), right-click and select the **Multiple Configuration** option.

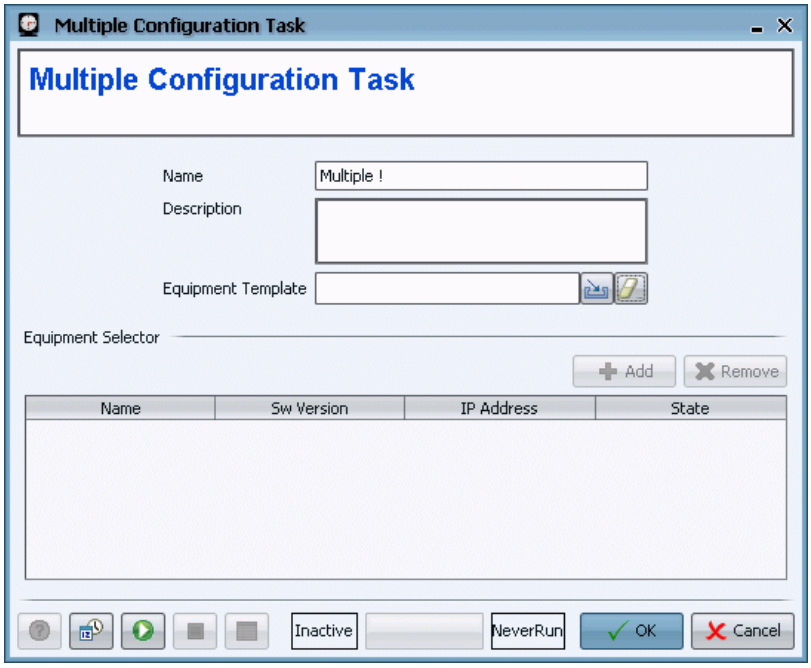


Figure 8-11: Multiple Configuration Task Editor

The Multiple Configuration Task editor comprises the following fields:

Parameter	Description
Name	The name of the task. A string of 1 to 128 characters.
Description	An optional free text field providing a general description of the task.
Equipment Template	Use the Browser button to open the Template Selector and select the template you want to use.

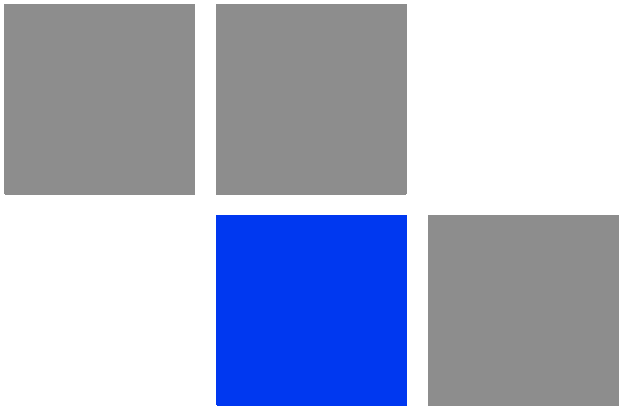
The Equipment Selector table includes the following details for each device participating in the task:

Parameter	Description
Name	The name of the device as configured in the device.
SW Version	The running SW version of the device.
IP Address	The IP address of the device.
State	The operational state of the device

Click **Add** to open the Equipment Selector, allowing you to add objects to the Equipment table:

If the MO Type of the selected template is ASN-GW or Management, the equipment selector includes all eligible BTSs. If the MO Type is BS, the selector enables selection of eligible BSs.

Click **Remove** to remove one or several selected objects from the table.



Chapter 9

The File Manager

In This Chapter:

- "The File Manager" on page 306
- "Equipment File Manager" on page 307
- "Duplicate Site File Manager" on page 310

9.1 The File Manager

The File Manager enables viewing details and managing different types of files stored in the database of the management system.

To open the File Manager

1 Select *Administration* > *File Manager* from the Navigation Pane or menu bar. The File Manager window opens.

2 In the View field, use the drop-down menu to select the type of file you want to manage. The contents of the window will change according to the selected type.

The following sections describe the functionality of the following file managers, according to the selected type:

- “Equipment File Manager” on page 307
- “Duplicate Site File Manager” on page 310

9.2 Equipment File Manager

The Equipment File Manager enables viewing details of different files that were retrieved from managed devices and are available in the database of the management system. It also enables initiating the Restore Configuration Task (see "Restore Configuration Task" on page 285), exporting files to the client file-system and importing files stored in the client file-system. Files are added to the database by either importing them (see details below) or by retrieving them from the managed devices using an applicable task (Performance Collection or Backup Configuration).

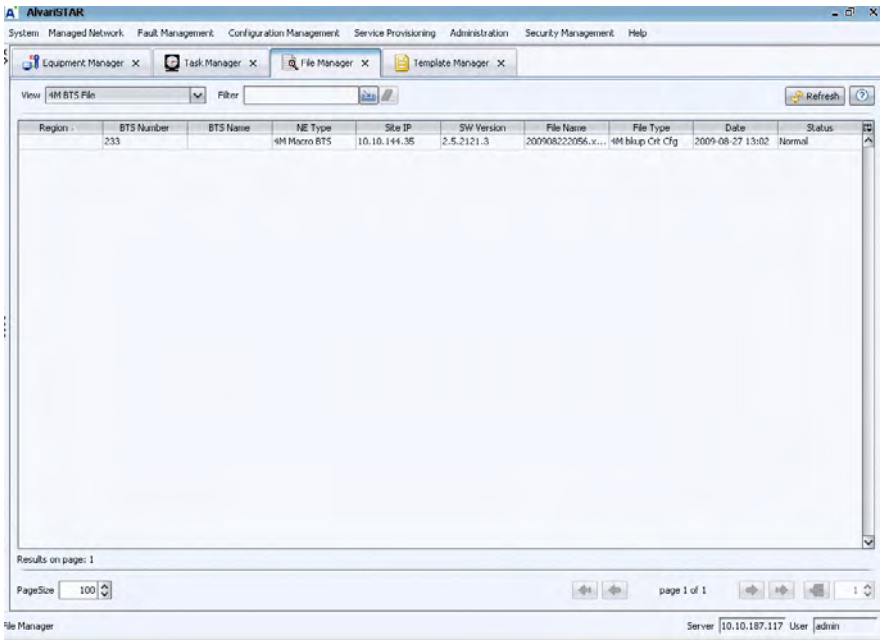


Figure 9-1: Equipment File Manager

You can use the Criteria Select Filters for viewing only files that meet one or several selection criteria.

The read-only details of displayed files are

Parameter	Description
Region	The location associated with the selected equipment in the database of the management system.
BTS Number	The BTS number (Site ID) as configured in the device.

Parameter	Description
BTS Name	The name of the BTS as configured in the device.
NE Type	The device type.
Site IP	The IP address of the device.
SW Version	The running SW version used by the device when the file was created.
File Name	The name of the file. The name includes the data and time at which the file was created by the source device, using the real time clock of the device. The format is: ■ bkupCrtCfg file: <date&time>.xml.gz ■ bkupOlderCfg file: <date&time>.xml.gz ■ bkupLogging: <date&time>.log.gz ■ performance: ptf_<date&time>.xml.gz Not applicable to the Local CRAFT Utility.
File Type	The type of file: ■ bkupCrtCfg: A configuration backup file, requested for current configuration. ■ bkupOlderCfg: A configuration backup file, requested for an older configuration. ■ bkupLogging: A logging file. ■ performance: A performance collection file. Not applicable to the Local CRAFT Utility.
Date	The date and time at which the file was added to the database of the management system, using the real time clock of the client.
Status	The status of the file: Normal, Orphan(a backup file for a device that was removed from the database), Imported (for an imported file).

Select one or several entries and right-click to view the following file management options:

Parameter	Description
Restore	Applicable only if one configuration file (current or older) is selected. Opens the Restore Task Editor for the selected configuration backup file, enabling to restore the configuration. See "Restore Configuration Task" on page 285. The Restore Task Editor can also be opened by double-clicking on the selected configuration file's entry.
Delete	Deletes the selected file(s) from the database.
Export	Exports the selected file(s) to the client file-system. Click to open the **Save** window, browse to the desired location on the client file-system, and click **Save** to export the file(s).
Import	Imports a configuration backup file from the client file-system. Click to open the **Import Config Backup File** window, browse to the location on the client file-system where the file is stored, select the file and click **Import**. NOTE: The Import option is available when right-clicking anywhere in the work area, without the need to select any existing entry.
Export To Server	Available only for configuration backup and performance files, when selecting files of the same type. Click to export the selected file(s) to the file system in the management system's server. Performance files are stored in /filesystem/SitesFiles/Performance/ Backup files are stored in /filesystem/SitesFiles/FullConfiguration/ A backup file name will be appended with the BTS Number and IP Address.

9.3 Duplicate Site File Manager

The Duplicate Site File Manager enables viewing details of configuration files that were prepared using the Duplicate Site Manager (see "The Duplicate Site Manager" on page 99) and are available in the database of the management system. It also enables initiating the Restore Configuration Task (see "Restore Configuration Task" on page 285), exporting files to the client file-system and importing files stored in the client file-system. Files are added to the database by either importing them (see details below) or when created using the Duplicate Site Manager.

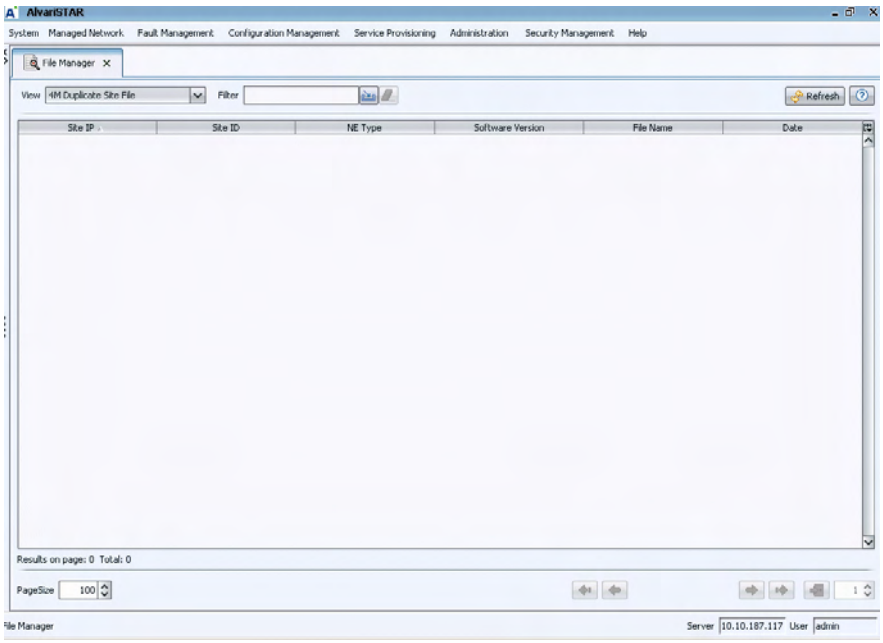


Figure 9-2: Duplicate Site File Manager

You can use the Criteria Select Filters for viewing only files that meet one or several selection criteria.

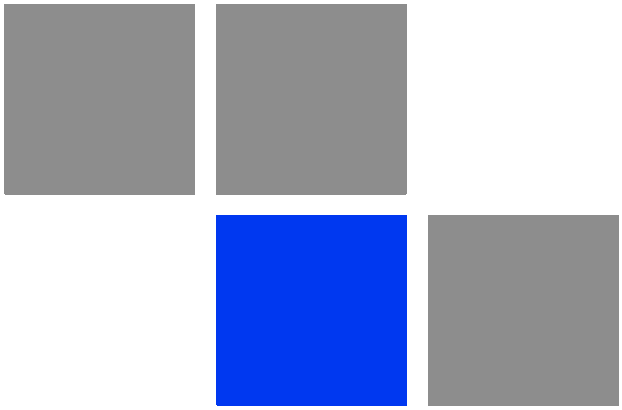
The read-only details of displayed files are:

Parameter	Description
Site IP	The IP address of the device as configured during creation of the duplicate site file.

Parameter	Description
BTS Number	The ID number of the device (Site ID) as configured during creation of the duplicate site file.
NE Type	The type of product used for preparing the duplicate site file.
Software Version	The Software Version specified during creation of the Duplicate Site file.
File Name	The name of the file that includes the data and time at which the file was created, using the real time clock of the source equipment.
Date	The date and time at which the file was added to the database of the management system, using the real time clock of the client.

Select one or several entries and right-click to view the following management options:

Parameter	Description
Restore	Opens the Restore Task Editor for a selected Duplicate Site file, enabling to restore the configuration. See "Restore Configuration Task" on page 285. The Restore Task Editor can also be opened by double-clicking on the selected file's entry.
Delete	Deletes the selected file(s) from the database.
Export	Exports the selected file(s) to the client file-system. Click to open the **Save** window, browse to the desired location on the client file-system, and click **Save** to export the file(s).
Import	Imports an Duplicate Site file from the client file-system. Click to open the **Import Duplicate Site File** window, browse to the location on the client file-system where the file is stored, select the file and click **Import**. NOTE: The Import option is available when right-clicking anywhere in the work area, without the need to select any existing entry.



Chapter

Parameters Summary

10.1 Parameters Summary

Parameter	Range	Default
Site Page - General Tab		
BTS Number	Integer, 0-999999	0 (a different value must be configured)
BTS Name	String (up to 32 characters)	null (empty string)
BTS Location	String (up to 70 characters)	null (empty string)
Locaton in Site and Rack	String (up to 32 characters)	null (empty string)
Contact Person	String (up to 32 characters)	null (empty string)
Longitude Not applicable if Gonfigured GPS Type is Trimble.	Use the format, lll.mmm.a (where lll is fro 0 to 179, mmm is from 000 to 999, and the value of a is either E or W)	000.000.N
Latitude Not applicable if Gonfigured GPS Type is Trimble.	Use the format, lll.mmm.a (where lll is fro 0 to 89, mmm is from 000 to 999, and the value of a is either N or S)	000.000.E
Altitude Not applicable if Gonfigured GPS Type is Trimble.	-300.0 to 9000.0	0
Configured ASN Topology	■ Distributed ASN-GW ■ Centralized ASN-GW	Distributed ASN-GW
Site Page - Dry Contact Tab		

Parameter	Range	Default
Input Alarm Name (for Input Number 1-8)	■ Commercial Power Failure ■ Fire ■ Enclosure Door Open ■ High Temperature ■ Flood ■ Low Fuel ■ Low Battery Threshold ■ Generator Failure ■ Intrusion Detection ■ External Equipment Failure	External Equipment Failure
Send Alarm (for Input Number 1-8)	■ Close ■ Open	Close
Blocking (for Input Number 1-8)	■ yes ■ no	no
Output Alarm Name (for Output Number 1-3)	String (up to 256 characters)	null (empty string)
State	■ on ■ off	off
Site Page - Time Tab		
UTC Time and Date	The format is hh: mm: ss, dd/mm/yyyy hh between 0 and 23, mm between 0 and 59, ss between 0 and 59, dd/mm with usual date and month rules, yyyy between 2006 to 9999.	N/A
Local Time Zone	+/-HH:MM HH: -12 to +13 MM: 00 or 30	+0:00

Parameter	Range	Default
Daylight Saving Time	■ 0 ■ 1 ■ 2 (in hours)	0
Read GPS Time	■ Hourly ■ Daily ■ Monthly ■ Yearly	Daily
Read GPS Time At	HH:MM: SS, DD/MM	N/A
Maximum Number of Satellites for Sync Loss	0-11	1
Minimum Number of Satellites for Sync Return	1-12	2
Stop AU transmission After Maximum Time in Holdover State	■ TRUE ■ FALSE	TRUE
L1/L2 Connectivity Page		
NMS Connectivity Mode	■ In Band ■ Out of Band ■ Unified	In Band
Site VLAN Configuration		
Bearer VLAN ID	11-100, 110-4094.	11
External Ether Type	8100, 88A8, 9100, 9200	88A8
AU Maintenance VLAN ID	1-9, 11-100, 110-4094	14
Ethernet Ports Editor (only Cascade Port is configurable)		
Administrative State Following parameters are configurable only if Administrative State is Down	■ Up ■ Down	Up
Negotiation Configurable only if Administrative State is Down	■ Auto ■ Manual	Auto

Parameter	Range	Default
Port Speed Configurable only if Negotiation is Manual	■ 10 (Mbps) ■ 100 (Mbps) ■ 1000 (Mbps)	1000
Max Frame Size	Backhaul interface: 1518-9000 bytes. Other interfaces: 1518, 1522, 1526, 1536, 1552, 1664, 2048, 9022 (Bytes)	■ Backhaul: 1664 ■ Other interfaces:1522
Backhaul VLAN Translation (a maximum of two entries)		
Enable VLAN ID Translation	Enable/Disable (check-box)	Disable (unchecked)
VLAN ID	A VLAN ID that is allowed on the port:	N/A
Change To	11-4094	N/A
IP Interface Page - IP Interface Editor		
Administrative State	■ Up ■ Down	Up
Description Configurable only if Administrative State is Down	String (up to 35 characters)	null (empty string)
IP Address Configurable only if Administrative State is Down	Valid IP address	External Management: 192.168.1.1 Beare: 172.16.0.1 Local Management: 172.31.0.1
IP Subnet Mask Configurable only if Administrative State is Down	Valid subnet mask	255.255.255.0
MTU Size Configurable only if Administrative State is Down	68-1500	1500
VLAN ID Configurable only if Administrative State is Down. Not configurable for Local Management.	11-100, 110-4094.	N/A
IP Routing Page		

Parameter	Range	Default
Destination	Valid IP address	N/A
Mask	Valid address mask	N/A
Next Hop	Valid IP address	N/A
ACL Page		
ACL Table		
ACL Number	■ 1-99 (Standard ACL) ■ 100-198 (Extended ACL) ■ 199 (QoS Marking ACL)	null
ACL Name	String (up to 20 characters)	ACL Number
ACL Active State	■ Up ■ Down	Down
ACL Applicable Interface	■ None ■ ASN-GW ■ All AU ■ ASN-GW & All AU	ASN-GW
ACL Parameters		
Source IP Address	Valid IP address	0.0.0.0 (any)
Source IP Mask	Valid IP mask. Not applicable for ACL 199.	255.255.255.255
Minimum Source Port	1-65535. Not applicable for Standard ACL.	0
Maximum Source Port	1--65535. Not applicable for Standard ACL. Not applicable for ACL 199.	65535
Destination IP Address	Valid IP address. Not applicable for ACL 199.	0.0.0.0 (any)
Destination IP Mask	Valid IP mask. Not applicable for ACL 199.	255.255.255.255
Minimum Destination Port	1-65535. Not applicable for Standard ACL. Not applicable for ACL 199.	0
Maximum Destination Port	1-65535. Not applicable for Standard ACL. Not applicable for ACL 199.	65535
Protocol	1-255. Not applicable for Standard ACL. In ACL 199 the valid values are 6 (TCP) and 17 (UDP).	255
Rule Action	Allow/Drop. Not applicable for ACL 199.	Allow

Parameter	Range	Default
Classifier ID	Applicable only for ACL 199. The list of existing classifier IDs. A classifier ID cannot be associated to more than one rule.	1
QoS Marking Rules Page		
Marking Actions		
Flag	■ DSCP ■ DSCP & Priority ■ Priority	DSCP & Priority
DSCP	0-63	0
Priority	0-7, where 0 is the lowest and 7 is the highest	0
QoS Marking Classifiers		
Classifier ID	1-65535	N/A
Action ID	■ Existing Action IDs. An Action ID cannot be associated with more than one Classifier.	null
Management Page - Managers List Tab		
SNMP Managers (up to 5)		
Read Communityy	String (up to 10 characters; case-sensitive)	
Write Community	String (up to 10 characters; case-sensitive)	
SNMP Trap Managers (up to 5)		
IP Address	Valid IP address	N/A
Port Number	1-65535	162
Community	String (up to 10 characters; case-sensitive)	public
Enable Site Traps	■ Enable ■ Disable	Enable
Management Page - Performance Tab		
Performance Collection Interval	■ 15 minutes (not configurable in current release)	15 minutes
Connectivity		
Backhaul Port	Enable/Disable (check-box)	Enable
Management Port	Enable/Disable (check-box)	Enable
Cascade Port	Enable/Disable (check-box)	Enable
Internal Ethernet Port	Enable/Disable (check-box)	Enable

Parameter	Range	Default
Internal Management Interface	Enable/Disable (check-box)	Enable
External Management Interface	Enable/Disable (check-box)	Enable
Local Management Interface	Enable/Disable (check-box)	Enable
ASN-GW		
Bearer Interface	Enable/Disable (check-box)	Enable
AAA Client	Enable/Disable (check-box)	Enable
Authenticator	Enable/Disable (check-box)	Enable
Context	Enable/Disable (check-box)	Enable
Data Path	Enable/Disable (check-box)	Enable
DHCP-Proxy	Enable/Disable (check-box)	Enable
DHCP-Relay	Enable/Disable (check-box)	Enable
DHCP-Server	Enable/Disable (check-box)	Enable
SFA	Enable/Disable (check-box)	Enable
MS State Change	Enable/Disable (check-box)	Enable
APCEF	Enable/Disable (check-box)	Enable
AU		
De-Registration	Enable/Disable (check-box)	Enable
Integrity	Enable/Disable (check-box)	Enable
Mobility	Enable/Disable (check-box)	Enable
Network Entry	Enable/Disable (check-box)	Enable
Traffic	Enable/Disable (check-box)	Enable
Utilization	Enable/Disable (check-box)	Enable
Idle Mode	Enable/Disable (check-box)	Enable
Fast Feedback CQI Handling	Enable/Disable (check-box)	Enable
Ack/Nack Channel Handling	Enable/Disable (check-box)	Enable
End Transaction Update	Enable/Disable (check-box)	Enable
DL Frame Data Zone Histograms	Enable/Disable (check-box)	Enable
Tx R1 Net Traffic	Enable/Disable (check-box)	Enable
Rx R1 Net Traffic	Enable/Disable (check-box)	Enable
Tx R1 Total traffic	Enable/Disable (check-box)	Enable
Rx R1 Total Traffic	Enable/Disable (check-box)	Enable
DL HARQ Sub-Bursts Drop	Enable/Disable (check-box)	Enable

Parameter	Range	Default
DL HARQ Transmission	Enable/Disable (check-box)	Enable
General	Enable/Disable (check-box)	Enable
All MS Basic Mode	Enable/Disable (check-box)	Disable
MS Advanced Mode	Enable/Disable (check-box)	Disable
Management Page - Logging Tab		
Remote Log Server		
Enable logging to server	Enable/Disable (check-box)	Disable
Server IP	Valid IP address	192.168.0.1
Log to File		
Enable logging to file	Enable/Disable (check-box)	Enable
Log Severity		
Log Severity (per module)	■ Disable ■ Emergency ■ Alert ■ Critical ■ Error ■ Warning ■ Notice ■ Informational	Error
Power Supply Page		
PIU Card Properties (Slot 1-2)		
Required	■ Yes ■ No	Yes
Required HW Version	■ 58Amp ■ 35Amp	58Amp
PSU Card Properties (Slot 1-4)		
Required	■ Yes ■ No	Yes
NPU Page		

Parameter	Range	Default
Shutdown Operation	■ No Action ■ Shutdown ■ Reset ■ Reset to Factory	No Action
Daily Backup Time	hh:mm	00:00
Create New AU		
Type	AU 4x4 Modem	AU 4x4 Modem
AU Number (if ctreated from navigation tree)	Available AU Slot nubers	First available AU Slot.number
AU Page - Properties Tab		
Required Type	AU 4x4 Modem)	AU 4x4 Modem
IP Address	IP address	192.168.0.1
Mask	Subnet Mask	255.255.255.0
Next Hop	IP address	0.0.0.0 (none)
AU Slot Page - Control Tab		
Shutdown Operation	■ Normal Operation ■ Reset ■ Shutdown	Normal Operation
Shutdown Power (AU to ODU) per port	■ Shutdown (Ports 1-4) ■ No Shutdown (Ports 1-4)	No Shutdown (all ports)
Create New ODU		
ODU type	A list of ODU types	
ODU Number	Available ODU nubers	First available ODU.number
ODU Page		
General		
Required ODU Type	■ A list of ODU types	N/A
External Cavity Filter Existence	True/False (check-box)	False
Ports Configuration		

Parameter	Range	Default
Tx Power (dBm) (Tx ports only)	Depends on ODU type. The upper limit is set by the Maximum Tx Power supported by the ODU. The control range for all ODUs is 10dBm, except to the 1x1 ODUs in the 2.3 and 2.5 GHz bands whose control range is 6dBm. This includes: ODU-2300-2360-000N-36-1x1-N-0, ODU-2496-2602-000N-36-1x1-N-0, ODU-2590-2690-000N-36-1x1-N-0.	The maximum supported by the ODU
Antenna Page		
Antenna Product Type	a list of antennas	"Default 2 Port DS
Description	String (1 to 32 characters)	null
Specification		
Number of Ports	1-8	1
Electrical Down Tilt (deg)	-90.0 to 90.0 in steps of 0.1	0
Installation		
Mechanical Down Tilt (deg)	-90.0 to 90.0 in steps of 0.1	0
Heading (deg)	0-359	0
Cable Loss (dB)	0-20 in steps of 0.1	0.5
Location		
Longitude (deg)	lll.mmm;a lll is between 000 and 179 mmm is between 000 and 999; a is E or W	000.000.N
Latitude (deg)	lll.mmm;a lll is between 000 and 89 mmm is between 000 999; a is N or S	000.000.E
Tower Height (m)	0-500	0
GPS Page		
Configured GPS Type	■ Trimble ■ None	Trimble
Almanac Usable Time (Hours)	0-4320	720
Ephemeris Usable Time (Hours)	0-168	4

Parameter	Range	Default
Power Feeder Page (per entry)		
AU Slot Number	1-4, 7-9, None	None
AU Port Number	1-4, None	None
QoS Marking Page (per rule)		
Rule Status	■ Enable ■ Disable	Enable
Marking Rule Name	String (1 to 30 characters)	Null
Rule Applied on Interface	■ Internal ■ External ■ ANY	ANY
Service Flow Data Delivery Type	■ UGS ■ RTVR ■ NRTVR ■ BE ■ ERTVR ■ ANY	ANY
Service Flow Traffic Priority	0-7 (where 7 is highest), or ANY	ANY
Service Flow Media Flow Type	"ANY" or media flow string (1-30 characters))	“ANY”
Action		
Outer DSCP Marking	0-63	0
802.1p Priority Marking	0-7	0
AAA Page		
ASN-GW NAS ID	0-64 charachters	Null
GMT Time Zone Offset (seconds)	0-86400	0
VLAN Classifier Bit Alignment	■ MSB Shift ■ LSB	MSB Shift
RADIUS Shared Secret	1 to 49 characters	default
Primary Server IP Address	IP address	172.16.0.10
Service Group Page - Service Interfaces Tab (per service interface, up to 10)		

Parameter	Range	Default
Service Interface Name	String (1-30 characters)	null (must be specified)
Description	String (up to 70 characters)	Null
Type	■ IP-in-IP ■ VLAN	IP-in-IP
Tunnel Destination IP	Valid IP address Applicable only for IP-in-IP. Must be unique among all the Host Interfaces IP's (Bearer, Local-Management, Internal-Management, External-Management) and existing instances of Service Interface's Tunnel Destination IP Address and Default Gateway IP Address	N/A
MTU Size (Bytes)	556-1804	1480
Service VLAN ID	1-9, 11- to 4094, Applicable only for VLAN service interfaces. Shall not conflict with other instances of Service Interface VLAN ID and VLAN IDs of Bearer, Local-Management and External-Management interaces.	N/A
Default Gateway IP Address.	Valid IP address. Applicable only for VLAN service interfaces. Must be unique among all the Host Interfaces IP's (Bearer, Local-Management, Internal-Management, External-Management) and existing instances of Service Interface's Tunnel Destination IP Address and Default Gateway IP Address. Should be in the same subnet.with the IP Address of the DHCP server/proxy/relay to be assigned to a service group using this service interface.	N/A.
Subnet Mask	Valid subnet mak. Applicable only for VLAN service interfaces. Interface mask should be configured in such a way that the resulting subnet should not overlap with an existing Interface subnet (host interfaces, other service interfaces).	N/A
Enable Checksum	Yes/No (check-box). Applicable only for IP-in-IP service interfaces.	No
Service Group Page - Service Groups Tab (per service group, up to 10)		
Name	String (1 to 30 characters)	N/A

Parameter	Range	Default
Type	■ IP ■ VPWS-QinQ ■ VPWS-Transparent ■ VPWS-Mapped	IP
Service Interface Name	One of the defined service interface names.	The first existing name
DHCP Function Mode	■ Server ■ Proxy ■ Relay	Server
Lease Time	The range is 24-4294967295 seconds. Not applicable in DHCP Relay mode.	86,400
DHCP Own IP Address	Valid IP address In DHCP Server mode, the source IP address must be inside the range allocated for users address pool as provisioned in the DHCP Function Editor. For a service group using a VLAN service interface, should be in same subnet with the Default Gateway configured for the service interface associated with the service group. Subnet mask is taken as the default subnet mask i.e 255.255.255.0.	0.0.0.0
Enable Service VLAN	Enable/Disable (check-box)	Disable
MS-MS Loopback	Enable/Disable (check-box)	Enable
VID Mapping Range		
Start	1-4094	N/A
End	1-4094	N/A
Accounting		
Accounting Mode	None Time Volume Time	Time
Interim Interval	0 (none), 5-1600 (minutes)	5
DHCP Function (Server/Proxy Mode)		
Address Configuration		

Parameter	Range	Default
Primary DNS Server	Valid IP address	0.0.0.0
Secondary DNS Server	Valid IP address	0.0.0.0
IP Address Pool: From	Valid IP address	0.0.0.0
IP Address Pool: To	Valid IP address	255.255.255.255
Add Excluded IP Address	Valid IP address	0.0.0.0
Subnet Mask	Valid subnet mask	255.255.255.255
Default Gateway IP Address	Valid IP address	0.0.0.0
DNS Server IP Address	Valid IP address	N/A
Address Allocation Timeout		
Renewal Time	1-100%	50%
Rebind Time	1-99 %	75%
Offer Reuse Time	1-120	5
Management Server		
Server Host Name	String. Up to 64 characters.	Null
Client Boot File Name	String. Up to 128 characters.	Null
Vendor Class Identifier	String. Up to 30 characters. Null string means disable Option 60.	dslforum.org
Vendor Specific Information Name	String. Up to 64 characters.	InternetGatewayDevice.ManagementServer.URL
Vendor Specific Information Value	String. Up to 64 characters.	
DHCP Function (Relay Mode)		
External DHCP Server IP Address	Valid IP address	0.0.0.0
Enable Relay Agent Information	Enable/Disable (check-box)	Disable
Relay Agent Information Parameters		
Enable Unicast Relay Agent Information	Enable/Disable (check-box)	Disable
Enable RADIUS Attributes	Enable/Disable (check-box)	Disable
RADIUS Attribute Messages		
Service Type	Enable/Disable (check-box)	Disable
Vendor Specific	Enable/Disable (check-box)	Disable
Session Timeout	Enable/Disable (check-box)	Disable

Parameter	Range	Default
Agent Circuit ID	Not Set (disable), Default, MS ID, BS ID, NAS ID, NAS IP, ASCCI Agent Circuit ID, ASCII Bin Fr, Full-NAI, Domain, ASCII MS ID, ASCII BS ID.	Not Set
Binary/ASCII Agent Circuit ID	For ASCII Agent Circuit ID, enter the ID string in the text box (uo to 32 characters. For ASCII Bib Fr, enter a string of up to 32 hexadecimal digits (no spaces).	null
Agent Remote ID	Not Set (disable), Default, MS ID, BS ID, NAS ID, NAS IP, ASCCI Agent Remote ID, ASCII Bin Fr, Full-NAI, Domain, ASCII MS ID, ASCII BS ID.	Not Set
Binary/ASCII Agent Remote ID	For ASCII Agent Remote ID, enter the ID string in the text box (uo to 32 characters. For ASCII Bib Fr, enter a string of up to 32 hexadecimal digits (no spaces).	null
Agent Subscriber ID	Not Set (disable), Default, MS ID, BS ID, NAS ID, NAS IP, ASCCI Agent Subscriber ID, ASCII Bin Fr, Full-NAI, Domain.	Not Set
Binary/ASCII Agent Subscriber ID	For ASCII Agent Subscriber ID, enter the ID string in the text box (uo to 32 characters. For ASCII Bib Fr, enter a string of up to 32 hexadecimal digits (no spaces).	null
SFA Page - PHS Rules Tab		
Enable PHS Support	Enable/Disable (check-box)	Disable
Name	String, 1-~~11~~30 characters.	null
Field Value		null
Mask Value (bits)		null
Verify Value	■ No ■ Yes	No
Size Value (Bytes)	■ 0-20	null
SFA Page - Classification Rules Tab		
Name	String, 1-30 characters	null
PHS Rule Name	Available PHS Rule Names or None	None
Priority	0-255	0
Type	L2 or L3	L3

Parameter	Range	Default
Layer 2 (applicable only for L2 rules)		
CVID	1-4094	null
Layer 3 (applicable only for L3 rules)		
Enable IP TOS	Enable/Disable (check-box)	Disable
TOS Range-From	0-63	0
TOS Range- To	0-63	0
TOS Mask	0-63	0
Enable IP Protocol	Enable/Disable (check-box)	Disable
IP Protocol	1-255	1
Enable IP Source Classifer	Enable/Disable (check-box)	Disable
IP Source Address	Valid IP address	0.0.0.0
IP Source Mask	Valid IP address mask	255.255.255.255
Enable IP Destination Classifier	Enable/Disable (check-box)	Disable
IP Destination Address	Valid IP address	0.0.0.0
IP Destination Mask	Valid IP address mask	255.255.255.255
Layer 4 (applicable only for L3 rules)		
Enable TCP/UDP Source Port	Enable/Disable (check-box)	Disable
TCP/UDP Source Port-From	1-65535	1
TCP/UDP Source Port-To	1-65535	65534
Enable TCP/UDP Destination Port	Enable/Disable (check-box)	Disable
TCP/UDP Destination Port -From	1-65535	1
TCP/UDP Destination Port -To	1-65535	65534
Create New Service Profile		
Service Profile Name	String, 1-30 characters	null
Service Profile Page		
Profile Status	■ Enable ■ Disable	Disable
Service Flow Parameters		
Flow ID	1-255	1
Media Flow Type	String, up to 32 characters	Null
Reference Service Group	Existing service group names.	The first name in the list.

Parameter	Range	Default
Uplink/Downlink		
Data Delivery Type	UGS; RTVR; NRTVR; BE; ERTVR and ANY.	UGS
Max. Sustained Traffic Rate (Kbps)	10-40000 Kbps	250
Min. Reserved Traffic Rate (Kbps)	0-40000. Cannot be higher than the Max. Sustained Traffic Rate.	250
Traffic Priority	0-7, where 7 is highest	0
Max. Latency (ms)	0- 4294967295.	500 If data delivery type is ERTVR or UGS,the default value should be 90ms.
Tolerated Jitter (ms)	0- 4294967295.	0
Unsolicited Grant Interval (ms (Uplink only))	0-65535 Must be lower than Uplink Max. Latency..	20.
Reference Classification Rules (UL/DL)		
Rule Name	Available Classification Rules	Null
ASN-GW Keep Alive Page		
Enable Keep Alive	■ Enable/Disable (check-box)	Disable
Polling Period	10-1000 seconds	60
Number of Retransmissions	1-10	3
Retransmission Timeout	5000-10000 milliseconds	5000
BS		
Create New BS		
BS ID LSB	x.x.x (x=0-255)	null
Operator ID	x.x.x (x=0-255)	255.243.41. Once the user enters a new ID it becomes the new default for new BSs
Copy BS		
BS ID LSB	x.x.x (x=0-255)	The BS ID of the source BS (must be changed)
Operator ID	x.x.x (x=0-255)	The Operator ID of the source BS

Parameter	Range	Default
Bearer IP	The IP address of the BS's IP interface	null
Center Frequency	From f1+1/2BW to f2-1/2BW, where f1 is the lowest frequency of the ODU's radio band, f2 is the highest frequency of the ODU's band, and BW is the configured bandwidth (copied from the source BS)	null
Cell ID	0-31	null
Preamble Group	The preamble group (1 or 2). A value of 2 is applicable only for the following combinations of Segment Number and Cell ID values: Segment Number=0, Cell ID=0, 3, 6, 9, 12, 15. Segment Number=1, Cell ID=1, 4, 7, 10, 13, 16. Segment Number=2, Cell ID=2, 5, 8, 11, 14, 17	null
Segment Number	0 - 2	null
Frame Number Offset	0 - 15	null
Map Major Groups	6 bits representing the selection of Map Major Groups 0 to 5 where the left-most bit (bit 5) represents Major Group 5. If BW=5 MHz, bits 1, 3 and 5 are not relevant. If Segment Number is 0, then bit #0 should be set (1). If Segment Number is 1, then bit #2 should be set (1). If Segment Number is 2, then bit #4 should be set (1).	null
Default Authenticator IP	IP addres	null
BS Radio Node		
Radio Basic Page - General Tab		
Name	String (up to 32 characters)	null
Bandwidth	■ 5 MHz ■ 7 MHz ■ 10MHz	5 MHz
Center frequency	From f1+1/2BW to f2-1/2BW, where f1 is the lowest frequency of the ODU's radio band, f2 is the highest frequency of the ODU's band, and BW is the configured bandwidth	null

Parameter	Range	Default
Idle Mode	Enable/Disable (check-box)	Disable
Paging Group ID	0-65535	0
Radio Basic Page - Air Frame Structure General Tab		
Cell ID	0-31	0
Preamble Group	1-2 (a value of 2 is applicable only for certain combinations of Segment Number and Cell ID values): Segment Number=0, Cell ID=0, 3, 6, 9, 12, 15. Segment Number=1, Cell ID=1, 4, 7, 10, 13, 16. Segment Number=2, Cell ID=2, 5, 8, 11, 14, 17	1
Segment Number	0-2	0
Frame Number Offset	0-15	0
Total Uplink Duration	4-7 for bandwidth of 5 or 10MHz, 3-5 for bandwidth of 7MHz.	6
Radio Basic Page - Air Frame Structure General Tab		
First Zone		
Minimum Size	2, 4,....34 (2xN where N=1-17) or No Limitation. See also recommended values in Section 6.10.2.1.3	No Limitation
Maximum Size	2, 4,....34 (2xN where N=1-17) or No Limitation Cannot be lower than Minimum Size	No Limitation
Maximum Map Size	10, 20,....300 (10xN where N=1-30) or No Limitation	No Limitation
Map Major Groups	If BW=5 MHz, bits 1, 3 and 5 are not relevant (grayed out). If Segment Number is 0, then bit #0 should be set (checked). If Segment Number is 1, then bit #2 should be set (checked). If Segment Number is 2, then bit #4 should be set (checked).	No bit is checked
Basic Map Repetition	1, 2, 4, 6	2

Parameter	Range	Default
Downlink Data Zone		
Basic Rate for Management	■ QPSK 1/2 Repetition 6 ■ QPSK 1/2 Repetition 4 ■ QPSK 1/2 Repetition 2 ■ QPSK 1/2 ■ QPSK 3/4 ■ 16-QAM 1/2 ■ 16-QAM 3/4 ■ 64-QAM 1/2 ■ 64-QAM 2/3 ■ 64-QAM 3/4 ■ 64-QAM 5/6	QPSK 1/2 Repetition 6
Permutation Base	0-31	0
Uplink Feedback Zone		
Permutation Base	0-69 in steps of 1	0
Uplink Data Zone		
Permutation Base	0-31	0

Parameter	Range	Default
Basic Rate	■ QPSK 1/2 Repetition 6 ■ QPSK 1/2 Repetition 4 ■ QPSK 1/2 Repetition 2 ■ QPSK 1/2 ■ QPSK 3/4 ■ 16-QAM 1/2 ■ 16-QAM 3/4 ■ 64-QAM 1/2 ■ 64-QAM 2/3 ■ 64-QAM 3/4 ■ 64-QAM 5/6	QPSK 1/2
Radio Advanced Page - Feedback Tab		
Ranging		
Start of Ranging Codes	0, 64, 128, 192	0
IR CDMA Allocation Period	1, 2, 4, 6, 8, 10	2
Maximum Cell Radius	1, 2, 4, 8, 15, 23, or 30	2
Feedback Allocation		
Radio Advanced Page - Diversity		
Transmit		
Downlink Data MIMO Mode	■ None ■ Matrix A ■ Matrix A/B	Matrix A/B
Dynamic Permutations		
Downlink Permutation Base	■ Static ■ Dynamic	Static
Uplink Permutation Base	■ Static ■ Dynamic	Static
Radio Advanced Page - Power Control Tab		

Parameter	Range	Default
Target Noise & Interference Level		
PUSC Zone	-130 to -110 in steps of 0.5 (dBm)	127
Power Control Correction Factor	-20 to 30 in steps of 0.1 (dB)	10
ACK	-20 to 50 dB	12
CQI	-20 to 50 dB. Must be in the range from Required C/N Level for ACK - 8 to Required C/N Level for ACK + 7.	12
CDMA	-20 to 50 dB. Must be in the range from Required C/N Level for CQI - 8 to Required C/N Level for CQI + 7.	8
QPSK 1/2	-20 to 50 dB. Must be in the range from Required C/N Level for CDMA - 16 to Required C/N Level for CDMA + 14.	14
QPSK 3/4	-20 to 50 dB. Must be in the range from Required C/N Level for QPSK 1/2 - 16 to Required C/N Level for QPSK 1/2 + 14.	16
16-QAM 1/2	-20 to 50 dB. Must be in the range from Required C/N Level for QPSK 3/4 - 8 to Required C/N Level for QPSK 3/4 + 7.	18
16-QAM 3/4	-20 to 50 dB. Must be in the range from Required C/N Level for 16-QAM 1/2 - 16 to Required C/N Level for 16-QAM 1/2 + 14.	22
64-QAM 1/2	-20 to 50 dB. Must be in the range from Required C/N Level for 16-QAM 3/4 - 16 to Required C/N Level for 16-QAM 3/4 + 14.	24
64-QAM 2/3	-20 to 50 dB. Must be in the range from Required C/N Level for 64-QAM 1/2 - 8 to Required C/N Level for 64-QAM 1/2 + 7.	25
64-QAM 3/4	-20 to 50 dB. Must be in the range from Required C/N Level for 64-QAM 2/3 - 8 to Required C/N Level for 64-QAM 2/3 + 7.	25
64-QAM 5/6	-20 to 50 dB. Must be in the range from Required C/N Level for 64-QAM 3/4 - 8 to Required C/N Level for 64-QAM 3/4 + 7.	25
Radio Advanced Page - Mobility Tab		
Trigger Setup		
Averaging Duration	1-255 frames	50
TBS		

Parameter	Range	Default
Handover Default Action Time	0-255 (frames)	9
Fast Ranging Allocations	0-255 (frames)	2
Neighbor Advertisement Broadcast		
Interval	0-100 in steps of 0.1	10
Radio Advanced Page - Management Tab		
Alarm Thresholds for Downlink Dropped Packets Ratio		
Best-Effort	1-1000 (promil)	1000
RT-VR	1-1000 (promil)	1000
NRT-VR	1-1000 (promil)	1000
UGS	1-1000 (promil)	1000
ERT-VR	1-1000 (promil)	1000
Alarm Thresholds for noise and interference level		
Uplink Median Noise	-135 to -100 (dBm)	-122
Uplink 99% Percentile Noise	-135 to -100 (dBm)	-125
Radio Advanced Page - QoS Tab		
Scheduler Mode	■ Equal Rate ■ Equal Time	Equal Rate
Scheduler DL Abuse Protection Level	■ None ■ Low ■ Medium	None
Scheduler UL Abuse Protection Level	■ None ■ Low ■ Medium	None
BS Connectivity Node		
Connectivity Basic Page - Bearer Tab		
IP Address	Valid IP address	N/A
IP Subnet Mask	Valid IP subnet mask	N/A
Default Gateway	Valid IP address	N/A
MTU Size	1500-9000	1500
Connectivity Basic Page - Authentication Tab		

Parameter	Range	Default
Default Authenticator IP Address	Valid IPv4 address	N/A
Authentication Thresholds		
Suspended EAP Process	0-10000	10000
Active MSs	0-1024	1024
Maximum EAP Rounds	0-100	100
Connectivity Advanced Page - ID-IP Mapping Tab		
Network Node ID	x.x.x (x=0-255)	null
Network Node IP Address	Valid IP address	null
Connectivity Advanced Page - QoS Marking Rules Tab		
QoS Rule Parameters		
Marking Rule Name	String (up to 32 characters)	null
Rule Status	■ Enable ■ Disable	Enable
Condition		
Service Flow Data Delivery Type	■ uGS ■ rTVR ■ nRTVR ■ bE ■ eRTVR ■ ANY	ANY
Service Flow Traffic Priority	0-7 or ANY	ANY
Enable Service Flow Media Flow Type	■ Enable/Disable (check-box)	Disable
Service Flow Media Flow Type	String (up to 32 characters)	null
Action		
Outer DSCP Marking	0-63	0
802.1p Priority Marking	0-7	0
Intra ASN Traffic QoS Rules		
Diffserv Code Point	0-63	0
802.1p Priority	0-7	0

Parameter	Range	Default
Internal Management Traffic QoS Rules		
Diffserv Code Point	0-63	0
802.1p Priority	0-7	0
Connectivity Advanced Page - Keep Alive Tab		
Enable Keep Alive	■ Enable/Disable (check-box)	Disable
Polling Period	10-1000 seconds	60
Number of Retransmissions	1-10	5
Retransmission Timeout	100-10000 milliseconds	1500
Services Page - Service Definition Tab		
Service Name	String, 1-32 characters	null
Maximum DL Retransmissions	0-15	5
Maximum UL Retransmissions	0-15	5
Paging Cycle	6-1000 (frames)	6
Paging Offset	9-1000 (frames)	0
Traffic Idle Period	50 to 60000 in steps of 50 (milliseconds	300
Downlink Basic Link	■ QPSK 1/2 Repetition 6 ■ QPSK 1/2 Repetition 4 ■ QPSK 1/2 Repetition 2 ■ QPSK 1/2 ■ QPSK 3/4 ■ 16-QAM 1/2 ■ 16-QAM 3/4 ■ 64-QAM 1/2 ■ 64-QAM 2/3 ■ 64-QAM 3/4 ■ 64-QAM 5/6	QPSK 1/2 Repetition 6
Enable Idle Mode Ms Initiated For UGS	Enable/Disable (check-box)	Disable
Services Page - Mapping Tab		

Parameter	Range	Default
Service Mapping Rule Parameters		
Rule Order	1-255	0 (must be changed to a unique value)
R6 Profile		
Data Delivery/Scheduling Type	■ UGS ■ RT-VR ■ NRT-VR ■ BE ■ ERT-VR ■ ANY	ANY
Priority	■ ANY ■ 0-7	ANY
Use Media Flow Type	■ Enable/Disable (check-box)	■ Disable
Media Flow Type	String (up to 32 characters)	Blank string
Use Min. Reserved Traffic Rate	■ Enable/Disable (check-box)	Disable
Min. Reserved Traffic Rate	■ -1 (any) ■ 0-40000	-1
Use Max. Sustained Traffic Rate	■ Enable/Disable (check-box)	Disable
Max. Sustained Traffic Rate	■ -1 (any) ■ 0-40000	-1
Use Latency	Enable/Disable (check-box)	Disable
Latency	■ -1 (any) ■ 0-5000	-1
Map to Service Type		
Service Name	Available Service Names	SampleData
Map to R1 Profile		
Modify Service QoS Parameters	■ Enable/Disable (check-box)	Disable
Default Priority	0 - 7	0
Priority	0 - 7	0

Parameter	Range	Default
Data Delivery/Scheduling Type	■ UGS ■ RT-VR ■ NRT-VR ■ BE ■ ERT-VR	UGS
Min. Reserved Traffic Rate	■ 0-40000;	0
Max. Sustained Traffic Rate	■ 0-40000;	0
Latency	0-5000	0
Jitter	0-5000	0
Grant Interval	0-5000	0
Create New Sector		
Set Sector Number	The available Site Sectors	The first available Site Sector
Site Sector Page		
Site Sector Definition		
Name	String (up to 32 characters)	null
Heading	0-359 The heading of an associated Sector cannot be changed.	0
Width	0-359	0
Site Sector Association-Add		
BS ID LSB	The available BS IS LSBs	null
AU Slot Number	The available AUs. identified by the Slot Number.	null
AU Port Number	1-4	null
ODU Number	The available ODUs	null
ODU Port Number	1 or 1-4, according to the type of selected ODU	null
Antenna Number	1The available Abntennas	null
Antenna Port Number	According to number of ports configured for the selected antenna,	null